

Room A

Wednesday, 13 October 2021

07:00 - 08:20

T041 - TT Electrical Machines and Drives

Chairs: Changxing Ding, Qinghua Dong

07:00-07:13 State of Health Estimation of Battery Charging System and BLDC Motor Drive deployed in Electric Vehicle Applications

Adil Usman, Bharat Singh Rajpurohit

Show (Yes/No): Comments:

07:13-07:26 Voltage Dip Analysis on Doubly Fed Induction Generator During Grid Faults in Wind Energy Conversion System

Milkias Berhanu Tuka

Show (Yes/No): Comments:

07:26-07:39 Sensorless and On-line Parameter Estimation with Model Predictive Control of IPMSMs

Minh Xuan Bui, Dan Xiao, Faz Rahman, Khac Thuy Le

Show (Yes/No): Comments:

07:39-07:52 Detection of Inter-turn Short Circuit Faults in Permanent Magnet Synchronous Motors with Multistrands Windings

Seongyun Kim, Hyeyun Jeong, Hojin Lee, Sang Woo Kim

Show (Yes/No): Comments:

07:52-08:05 Operation-Area-Selected Overmodulation Strategy for Flux-Weakening Control of Surface-Mounted Permanent Magnet Synchronous Motor

Yong Yu, Linzhi Wang, Bo Wang, Qinghua Dong, Dianguo Xu

Show (Yes/No): Comments:

08:05-08:18 Sensor-less Back-drive Control of Direct-drivable RotLin Linear Series Elastic Actuator

Lang Bu, Yasutaka Fujimoto

Show (Yes/No): Comments:

Room B

Wednesday, 13 October 2021

07:00 - 08:20

T045 - TT Electrical Machines and Drives

Chairs: Feng Qian, Weiguo Liu

07:00-07:13 Neural Network Model-based Direct Torque and Flux Predictor for Induction Motor Drive

Kanungo Barada Mohanty, Abhimanyu Sahu, Rabi Narayan Mishra

Show (Yes/No): Comments:

07:13-07:26 Origami Inspired Laser Scanner Design

Shen-Yun Chu, Shao-Kang Hung

Show (Yes/No): Comments:

07:26-07:39 Second-Order Complex-Coefficient Filter PLL for Model-based Sensorless IPMSM Drives with Operation-Frequency-Adaptive Character

Bo Wang, Anqi Ge, Yong Yu, Dianguo Xu

Show (Yes/No): Comments:

07:39-07:52 Novel Exciter Controller and Its Application in Rotor Position Estimation for Aircraft Three-Stage Wound Rotor Synchronous Starter-Generator

Ningfei Jiao, Xiaoke Zhang, Xu Han, Zijie Li, Peixin Liang, Weiguo Liu

Show (Yes/No): Comments:

07:52-08:05 Four quadrant operation of SRM drive based on Modulated Torque Sharing Function

Ashwani Kumar Rana, Samant Singh, A V Ravi Teja

Show (Yes/No): Comments:

08:05-08:18 Analysis of the effects of Considering Dynamic Cross Saturation in Mathematical Model of a Six-Phase Self-Excited Generator for Renewable Energy Applications

Mohd Rizwan Khan, Mohd Faisal Khan, Mohd Sartaj

Show (Yes/No): Comments:

Room C

Wednesday, 13 October 2021

07:00 - 08:20

T011 - TT Cloud Computing, Big Data and Software Engineering

Chairs: Yan Peng, Lei Peng

07:00-07:13 Pseudocode to Source code conversion using Sequence-to-Sequence Learning

Minhazul Arefin, Mohammed Nasir Uddin

Show (Yes/No): Comments:

07:13-07:26 Integrated Prediction of Regional Traffic Situation Based on Multi-Task Spatial-Temporal Network

Jiaao Yu, Kangshuai Zhang, Lei Peng

Show (Yes/No): Comments:

07:26-07:39 Knowledge driven rapid development of white box digital twins for industrial plant systems

Amar Banerjee, Subhrojyoti Roy Chaudhuri, Barnali Basak, Renganathan Dhakshinamoorthy, Seenivasan Annadurai, Naveenkumar Subramani

Show (Yes/No): Comments:

07:39-07:52 Fuzzy Unsupervised Approaches to Analyze Covid-19 Spread for School Reopening Decision Making

Feby Artwodini Muqtadiroh, Diana Purwitasari, Eko Mulyanto Yuniarno, Supeno Mardi Susiki Nugroho, Apol Pribadi Subriadi, Riris Diana Rachmayanti, Mauridhi Hery Purnomo

Show (Yes/No): Comments:

07:52-08:05 Automatic Classification of Lithofacies with Highly Imbalanced Dataset Using Multistage SVM Classifier

Deepan Datta, Gagandeep Singh, Aurobinda Routray, William K. Mohanty, Rahul Mahadik

Show (Yes/No): Comments:

08:05-08:18 Autonomous Temporal Time Zone Management

Michal Kvet

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room D

Wednesday, 13 October 2021

07:00 - 08:20

T081 - TT New Technologies for Electric Transportation

Chairs: Qingrui Zhang, Federico Faruffini

07:00-07:13 Retrofitting of Conventional Two-wheelers to Electric Two-Wheelers

Nirmal A Kumar, Navaneeth M, Allan Sabu Joseph

Show (Yes/No): Comments:

07:13-07:26 A Detailed Loss Model of Current-Fed Half-Bridge AC-DC Converter Considering Swinging Boost Inductor

Manish Kumar, Sumit Pramanick, B K Panigrahi

Show (Yes/No): Comments:

07:26-07:39 Driving Range Extension of Electric City Buses using Opportunity Wireless Charging

Harish Karneddi, Deepak Ronanki

Show (Yes/No): Comments:

07:39-07:52 Vertical control of a self-stabilizing monorail vehicle

Martin Griese, Fabian Kottmeier, Thomas Schulte

Show (Yes/No): Comments:

07:52-08:05 Context Modelling applied to the Intelligent Vehicle Navigation

Federico Faruffini, Hugo Pousseur, Alessandro Correa-Victorino, Marie-Hélène Abel

Show (Yes/No): Comments:

08:05-08:18 Procedure for Avoiding and Reducing Peak Loads at Large-scale Consumers via Bidirectional Charging of Electric Vehicles to Save Electricity Costs

Philipp Spichartz, Tobias Brüning, Constantinos Sourkounis

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room E

Wednesday, 13 October 2021

07:00 - 08:20

T021 - TT Control System, Robotics and Automation

Chairs: Lin Zhao, Wangli He

07:00-07:13 Event-Triggered Bipartite Consensus of Linear Leader-Following Multi-Agent Systems With Quantized Information

Qiang Wang, Wangli He, Dayu Tan, Weimin Zhong

Show (Yes/No): Comments:

07:13-07:26 Precise Localization for Cooperative Transportation Robot System Using External Depth Camera

Shinya Yasuda, Taichi Kumagai, Hiroshi Yoshida

Show (Yes/No): Comments:

07:26-07:39 Tracking and Catching of an In-Flight Ring using a High-Speed Vision System and a Robot Arm

Xiao Liang, Hairui Zhu, Yanlong Chen, Yuji Yamakawa

Show (Yes/No): Comments:

07:39-07:52 Secure Consensus Control of Two-timescale Networks Subject to Sequential Scaling Attacks

Kun Liang, Wangli He

Show (Yes/No): Comments:

07:52-08:05 Robust control of weight on bit in unified experimental system combining process model and laboratory drilling rig

Sike Ma, Min Wu, Luefeng Chen, Chengda Lu

Show (Yes/No): Comments:

08:05-08:18 Continuous Curvature Turns Based Method for Least Maximum Curvature Path Generation of Autonomous Vehicle

Yu Tian, Zhang Chen, Chuanyi Xue, Yiyong Sun, Bin Liang

Show (Yes/No): Comments:

Room F

Wednesday, 13 October 2021

07:00 - 08:20

T071 - TT Motion Control and Mechatronics

Chairs: Liang Hu, Sehoon Oh

07:00-07:13 Design of Disturbance Suppression Control for Shaking-Table by Data-driven Control

Shinji Ishihara, Koichi Tahara, Koji Hironaka

Show (Yes/No): Comments:

07:13-07:26 Equivalent Disturbance Compensator and Friction Compensation for Back-Forward Drivability Improvement

Yusuke Kawai, Juan Padron, Yuki Yokokura, Kiyoshi Ohishi, Toshimasa Miyazaki

Show (Yes/No): Comments:

07:26-07:39 Design and Analysis of a Magnetic Levitation Tension Testing Device

Mengyi Ren, Koichi Oka

Show (Yes/No): Comments:

07:39-07:52 An Adaptive Approach Based on Neural Network and Phase-Locked Loop for Correcting Quadrature Sinusoidal Signals of Magnetic Encoders

Siyi Yu, Weike Liu, Xiaofeng Yang, Feng Shu

Show (Yes/No): Comments:

07:52-08:05 Design of ABC algorithm-based Unknown-Input Estimator considering stability of initial colony

Shun Nishizawa, Toshiyuki Satoh, Naoki Saito, Jun-ya Nagase, Norihiko Saga

Show (Yes/No): Comments:

08:05-08:18 FDOB-Based Robust Impedance Control of Force Sensor Implemented Force Servo System

Kangwagye Samuel, Sehoon Oh

Show (Yes/No): Comments:

Room G

Wednesday, 13 October 2021

07:00 - 08:20

T061 - TT Industrial Automation, Communication, Networking and Informatics

Chairs: Yan Zhao, Wenbin Dai

07:00-07:13 Cross-Disciplinary View of Industrial Electronics: Change, Chance, and Challenge

*Jinhua She, Hipolito Guzman-Miranda, Victor Huang, Allen C. Chen, Stamatios Karnouskos,
Larisa Dunai, Alin Tisan, Sho Yokota*

Show (Yes/No): Comments:

07:13-07:26 Robust Classification with Noisy Labels for Manufacturing Applications: A Hybrid Approach Based on Active Learning and Data Cleaning

Shuo Zhao, Xin Li, Ying-Chi Chen

Show (Yes/No): Comments:

07:26-07:39 Process Monitoring based on Probabilistic Principal Component Analysis for Drilling Process

Haipeng Fan, Min Wu, Xuzhi Lai, Sheng Du, Chengda Lu, Luefeng Chen

Show (Yes/No): Comments:

07:39-07:52 Dataflow Management Platform for Smart Communities using an Edge Computing Environment

Shogo Shimahara, Hiroaki Nishi

Show (Yes/No): Comments:

07:52-08:05 Non-Functional Requirements Elicitation Based on Domain Knowledge Graph for Automatic Code Generation of Industrial Cyber-Physical Systems

Yingyue Zhang, Jiale Kang, Wenbin Dai

Show (Yes/No): Comments:

08:05-08:18 Integrated Asset Management Model based on IEC 61499 and Administration Shell

Bingshuo Lv, Yunpeng Zhang, Wenbin Dai

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room H

Wednesday, 13 October 2021

07:00 - 08:20

T121 - TT Signal and Image Processing and Computational Intelligence

Chairs: Xianwei Li, Tetsuyasu Yamada

07:00-07:13 Automatic Generation of Work Support Behavior with Smart Glasses based on the Deep Neural Network Corresponding to Encrypted Training Data

Kohjiro Hashimoto, Tadashi Miyosawa, Tetsuyasu Yamada

Show (Yes/No): Comments:

07:13-07:26 Real-time personnel counting of indoor area division based on improved YOLOV4-Tiny

Wei Wen, Fei Xia, Lin Xia

Show (Yes/No): Comments:

07:26-07:39 Biometric Information Acquisition System Using VMD in Wi-Fi Channel Status Information

Kazuya Tsubota, Yuki Nagatsu, Hideki Hashimoto

Show (Yes/No): Comments:

07:39-07:52 Online Knowledge Distillation Based On Multi-Stage Multi-Generative Adversarial Network

Yi min Zhou, Zhonghao Huang, Xing yao Yang

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room I

Wednesday, 13 October 2021

07:00 - 08:20

T091 - TT Power Electronics & Energy Conversion

Chairs: Huihui Pan, Zhitao Liu

07:00-07:13 Feedback Linearization Control for the Receiving-Side Buck Converter of Dynamic Wireless Charging System of Electric Vehicles

Ze Zhou, Zhitao Liu, Hongye Su, Liyan Zhang

Show (Yes/No): Comments:

07:13-07:26 An Online Noninvasive Estimation Method of Electrolytic Capacitor for Boost Converters

ChuanFeng Li, Yang Yu, Qingxin Liu, Xiyuan Peng

Show (Yes/No): Comments:

07:26-07:39 Improved I--V Tracer for Detecting and Analyzing Photovoltaic Power Generators

Yechen Zhu, Weidong Xiao

Show (Yes/No): Comments:

07:39-07:52 A Novel High-Frequency Isolated Single-Phase Full-Bridge Buck-Boost inverter

Usman Ali Khan, Ashraf Ali Khan, Fazal Akbar, Jung-Wook Park

Show (Yes/No): Comments:

07:52-08:05 Stability Oriented Design Considerations in the Control of Cascaded Converters through their Impedance Models

Goutam Ghosh, Soumitro Vyapari, Viju Nair

Show (Yes/No): Comments:

08:05-08:18 Operation Control Strategy of Multi-Energy DC Micro-Grid Considering Complementary Inertia of Gas and Battery

Xin Wang, Chunming Tu, Wanli Yang, Qi Guo, Yuchao Hou, Fan Xiao

Show (Yes/No): Comments:

Room J

Wednesday, 13 October 2021

07:00 - 08:20

T101 - TT Power Systems and the Smart Grid

Chairs: Yong Chen, Ning Gao

07:00-07:13 **Intelligent Controller for Thermal Comfort Management in Buildings**

Mubashir Wani, Akshya Swain, Abhisek Ukil

Show (Yes/No): Comments:

07:13-07:26 **Energy Management of multi-microgrids considering impacts of plug-in hybrid vehicles uncertainties and demand response**

Juhi Datta, Debapriya Das

Show (Yes/No): Comments:

07:26-07:39 **Opting DC-voltage Droop Control for WF-VSCs in AC-MTDC grids for Effective Frequency and DC-voltage Support**

Satish Kumar Ancha, Bibhu Prasad Padhy

Show (Yes/No): Comments:

07:39-07:52 **Transactive Control of Industrial Pumps with Associated Storage for Demand Response Market Participation in Singapore**

Rohit Chandra, Krishnanand Kaippilly Radhakrishnan, Sanjib Kumar Panda

Show (Yes/No): Comments:

07:52-08:05 **Fault Diagnosis and Reconfiguration for H6 Grid Tied Inverter Using Kalman Filter**

Chengqi Xiao, Weimin Wu, Ning Gao, Eftichios Koutroulis, Henry Shu-Hung Chung, Frede Blaabjerg

Show (Yes/No): Comments:

08:05-08:18 **Parameter Estimation for Underground Cable Fault Using Stochastic Optimization**

Sanhita Mishra, Soumyadeep Patra, Sarat Chandra Swain, Aurobinda Routray

Show (Yes/No): Comments:

Room K

Wednesday, 13 October 2021

07:00 - 08:20

S581 - SS Power Electronics Converters for Green Energy Supplies Topology, Modeling, Control, and Stability Analysis

Chairs: Nitin Gupta, Man Mohan Garg

07:00-07:13 A Fuzzy Logic based Adaptive Source Current THD Controller for Thyristor-Controlled LC-Coupling Hybrid Active Power Filter

Wai-Kit Sou, Pak-Ian Chan, Cheng Gong, Chi-Seng Lam

Show (Yes/No): Comments:

07:13-07:26 Extended Kalman Filter Based EV Charging Station with PV, Wind, Battery and UC Integration

Bhargavi K. M., Bansilal Bairwa, Santhoshkumar Hampanavar, Sahithi S

Show (Yes/No): Comments:

07:26-07:39 Modeling and Analysis of Modified Ultra-Lift Luo Converter Equipped with Voltage Multiplier Cell

Akash Kumar Sahoo, Nirav Patel, Nitin Gupta, Prashant Jamwal

Show (Yes/No): Comments:

07:39-07:52 Reduced Order Modeling of DFIG based on Singular Perturbation Theory

Qunying Liu, Yijia Heng, Runsheng Zheng, Shuheng Chen

Show (Yes/No): Comments:

07:52-08:05 An Impedance Model of a VSC-HVDC System Considering DC-side Dynamics for AC grid Stability Analysis

Ni Liu, Hong Wang, Xiaoyong Zheng, Zhe Chen

Show (Yes/No): Comments:

08:05-08:18 On the Stability of a Minimum-Loss Controlled Dual-VSI DFIG-DC System

Gil Marques, Matteo Iacchetti, Sérgio Cruz

Show (Yes/No): Comments:

Room L

Wednesday, 13 October 2021

07:00 - 08:20

S241 - SS DCDC Converters Circuits, Modeling, Control and Applications

Chairs: Mahajan Sagar Bhaskar, Frede Blaabjerg

07:00-07:13 A High Step-Up Nonisolated DC-DC Converter With Reduced Voltage Stress and Ripple-free Input Current

Zhishuang Wang, Ping Wang, Wentao Jiang, Bo Li, Yuhui Zhao

Show (Yes/No): Comments:

07:13-07:26 Switch Open and Short Circuit Fault diagnosis and Fault Tolerant Operation for Push-Pull Converter

Jinxin Liu, Xiaobing Zhang, Yingnan Ren, Guozhao Liu, Zhiyuan Guo

Show (Yes/No): Comments:

07:26-07:39 Unity Power Factor Control using Interleaved Boost Converter for Induction Motor Drive

Gauravkumar Prajapati, Archana Thosar, Arbind Kumar

Show (Yes/No): Comments:

07:39-07:52 Series Resonant Converter with Embedded Filters for DCX of Solid-State Transformer

Shota Okutani, Pin-Yu Huang, Ryo Nishiyama, Yuichi Kado

Show (Yes/No): Comments:

07:52-08:05 Comparative Analysis of Quadratic Buck-Boost Converters: Topology, Electric Stress, Reliability

Svk Naresh, Sankar Peddapati

Show (Yes/No): Comments:

08:05-08:18 Fast Transient Modulation of a Dual-Bridge Series Resonant Converter

Hui Xu, Sheng-zhi Zhou, Xiaodong Li, Hao Chen, Song Hu

Show (Yes/No): Comments:

Room M

Wednesday, 13 October 2021

07:00 - 08:20

S431 - SS IoT Automation Technologies, Tools and Applications

Chairs: Pal Varga, Federico Montori

07:00-07:13 Accelerating task completion in IIoT based smart factory through optimal restart

Qiushi Wang, Abhishek Gupta, Hian Leng Chan

Show (Yes/No): Comments:

07:13-07:26 Faster Deployment for Indoor Visible Light Positioning Using Xgboost Algorithms in Industrial Internet-of-Things

Pengfei Du, Sheng Zhang, Arokiaswami Alphones, Chen Chen

Show (Yes/No): Comments:

07:26-07:39 Stein Variational Recommendation System with Knowledge Embedding Enabling the IoT Services

Jia Liu, Yuanfang Chen, Sardar M.N. Islam, Pierluigi Siano

Show (Yes/No): Comments:

07:39-07:52 A Contemporary Approach Towards Curbing Cell Phone Use Related Road Mishaps

Abid Siddique, Mohammed Gousuddin, Rehna V. J.

Show (Yes/No): Comments:

07:52-08:05 Secure Communication Between Information Technology and Operational Technology

Mahyar Azarmipour, Ramy Hana, Zeeshan Ansar, Tobias Kleinert

Show (Yes/No): Comments:

08:05-08:18 Architecture pattern for automatic integration of IO-Link sensors into a System of Systems

Paul Patolla, Dirk Reichelt, Dirk Mothes, Germar Schneider

Show (Yes/No): Comments:

Room N

Wednesday, 13 October 2021

07:00 - 08:20

S151 - SS Advances in Renewable Energy Systems Condition Monitoring and Prognosis using Machine Learning

Chairs: Mohamed Benbouzid, Xiandong Ma

07:00-07:13 Collaboratively Diagnosing IGBT Open-circuit Faults in Photovoltaic Inverters: A Decentralized Federated Learning-based Method

Xinyi Wang, Bo Yang, Qi Liu, Tiankai Jin, Cailian Chen

Show (Yes/No): Comments:

07:13-07:26 A Hybrid Fault-Tolerant Control Strategy for Three-phase Cascaded Multilevel Inverters Based on Half-bridge Recombination Method

Huiwen Yang, Tianzhen Wang, Yunjie Tang

Show (Yes/No): Comments:

07:26-07:39 A Hierarchical Intelligent Fault Detection and Location Scheme for DC Ring Bus Microgrid

Xinlong Zheng, Hua Han, Manling Shi, Yao Sun, Mei Su, Hongfei Wang

Show (Yes/No): Comments:

07:39-07:52 Classification of Voltage Sag Causes based on Instantaneous Symmetrical Components using 1NN and Dynamic Time Warping

Maria Veizaga, Sophie Bercu, Claude Delpha, Demba Diallo, Ludovic Bertin

Show (Yes/No): Comments:

07:52-08:05 Effective Implementation of Convolutional Long Short-Term Memory (ConvLSTM) Network in Forecasting Solar Irradiance

Chibuzor Obiora, Ahmed Ali

Show (Yes/No): Comments:

08:05-08:18 A Hybrid Model of Modified Robust Linear Regression Optimized by Ant Colony Optimization for Photovoltaic System Efficiency Improvement Under Sudden Change of Environmental Conditions

Ahmed Ali, Mpho Nkambule

Show (Yes/No): Comments:

Room O

Wednesday, 13 October 2021

07:00 - 08:20

S131 - SS Advances in HumanMechatronic Systems

Chairs: Sho Yokota, Daisuke Chugo

07:00-07:13 Simultaneous robust optimization of tuned mass damper and control system of active mass damper

Kou Miyamoto, Sstoshi Nakano, Jinhua She, Daiki Sato, Yinli Chen

Show (Yes/No): Comments:

07:13-07:26 Detection of Glass Surface Using Reflection Characteristic

Hiroki Sudo, Satoshi Muramatsu, Katsuhiko Inagaki, Daisuke Chugo, Hiroshi Hashimoto

Show (Yes/No): Comments:

07:26-07:39 An Innovative Whisker Tactile Sensor for Intelligent Robotic Grasping

Sachith Dewthilina Liyanage, Abdul Md Mazid, Pavel Dzitac

Show (Yes/No): Comments:

07:39-07:52 Object Tracking Algorithm with Two-way Parallel Fully-convolutional Siamese Networks

Hongyu Lu, Xiaodong Ren, Min Tong

Show (Yes/No): Comments:

07:52-08:05 A Control Model for Following Target Inclination Angle in Lateral Direction for Omni-Directional Low-Floor Mobility

Mitsuhiro Suzuki, Sho Yokota, Akihiro Matsumoto, Daisuke Chugo, Hiroshi Hashimoto

Show (Yes/No): Comments:

08:05-08:18 Development of a Walking Promotion Device using Arm Swing Induced by Parametric Excitation Third report: Evaluation on experimental results in actual walking

Kazuki Yamada, Sho Yokota, Akihiro Matsumoto, Daisuke Chugo, Hiroshi Hashimoto

Show (Yes/No): Comments:

Room P

Wednesday, 13 October 2021

07:00 - 08:20

S481 - SS Modeling, Control, and design of Hybrid Offgrid systems

Chairs: Ambrish Chandra, Miloud Rezkallah

07:00-07:13 Resilient Synchronization Control of Distributed Generation Based Reconfigurable Microgrid

Farheen Chishti, Bhim Singh, Ambrish Chandra, Kamal Al-Haddad

Show (Yes/No): Comments:

07:13-07:26 Power Quality Improvement in a PV Based EV Charging Station Interfaced with Three Phase Grid

Bhim Singh, Vandana Jain, Seema Kewat, Ambrish Chandra, Kamal Al-Haddad

Show (Yes/No): Comments:

07:26-07:39 Islanded mode microgrid using Stirling based biogas generator and solar PV systems

Pratik Kalkal, A.V. Ravi Teja

Show (Yes/No): Comments:

07:39-07:52 Bumpless Transfer Control for A Class of Hybrid Stochastic Systems and Application to Electromagnetic Oscillation Circuit

Sun Yichong, Cai Bo, Lu Shuai, Weng Rui, Li Min, Tan Tianyu

Show (Yes/No): Comments:

07:52-08:05 Global Maximum Power Point Tracking Strategy based on BFO Method for Standalone PV System Under Partial Shading Conditions

Félix Dubuisson, Ambrish Chandra, Miloud Rezkallah, Hussein Ibrahim

Show (Yes/No): Comments:

08:05-08:18 Performance Study of a Decentralized Control Strategy for Hybrid Standalone Power Generation System

Mouloud Belaid, Miloud Rezkallah, Ambrish Chandra, Hussein Ibrahim

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room Q

Wednesday, 13 October 2021

07:00 - 08:20

S321 - SS Energy Harvesting Technologies for Industrial Applications

Chairs: Yunjia Li, Kai Tao

07:00-07:13 Mathematical Modelling and Equivalent Circuit Representation of Bladeless Wind Turbines

Vaibhav Bhardwaj, A.V. Ravi Teja

Show (Yes/No): Comments:

07:13-07:26 Torsional Electromagnetic Vibrational Energy Harvester Based on Stacked Flexible Coils

Xinyi Wang, Jiaxing Li, Chenyuan Zhou, Kai Tao, Dayong Qiao, Yunjia Li

Show (Yes/No): Comments:

07:26-07:39 Torsional Electromagnetic Vibrational Energy Harvester Based on Stacked Flexible Coils

Xinyi Wang, Jiaxing Li, Chenyuan Zhou, Kai Tao, Dayong Qiao, Yunjia Li

Show (Yes/No): Comments:

07:39-07:52 A Novel Diagnosis Method of Proton Exchange Membrane Fuel Cells Based on Multi-Grained Cascade Forest and Principal Component Analysis

Rui Ma, Yuqi Zhang, Hanbin Dang, Zhe Huo, Dongdong Zhao

Show (Yes/No): Comments:

07:52-08:05 Stability Analysis of Fuel Cell/Battery On-Board DC Microgrid Based on Mixed Potential Theory

Yigeng Huangfu, Aiben Wang, Cong Yuan

Show (Yes/No): Comments:

08:05-08:18 Comparison of different multi-winding transformer models in multi-port AC-coupled converter application

Haojun Qin, Huan Zhang, Ming Liu, Chengbin Ma

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room R

Wednesday, 13 October 2021

07:00 - 08:20

S711 - SS Smart Sensors Actuators and IEEE 1451 Standards for SGloTIIoTCPS

Chairs: Kang Lee, Eugene Song

07:00-07:13 Security for IEEE P1451.0-Based IoT Sensor Networks

Ke Zhou, Jun Wu, Kang B. Lee, Eugene Song

Show (Yes/No): Comments:

07:13-07:26 Time Synchronization of IEEE P1451.0 and P1451.1.6 Standard-based Sensor Networks

Hiroaki Nishi, Eugene Y. Song, Yuichi Nakamura, Kang B. Lee, Yucheng Liu, Kim Fung Tsang

Show (Yes/No): Comments:

07:26-07:39 Development of IoT-based System for Enhancing Traditional Electrical Compliance Testers in Testing Laboratories

Chi Chung Lee, Tsz Him Kong, Hong Yuen Chui, Yuk Wa Cheung, Lam Sing

Show (Yes/No): Comments:

07:39-07:52 Wall Shear Stress-Based Accuracy Verification of Convective Heat Transfer Coefficient Using Velocity Scale

Tatsuhiko Yamamoto, Akihito Ozaki

Show (Yes/No): Comments:

07:52-08:05 An Overview of Standards in Modern Human Factors

Allen C. Chen, Sho Yokota, Victor Huang, Jinhua She

Show (Yes/No): Comments:

08:05-08:18 Communication-Resilient Microgrid Distributed Frequency Control with an Event-Triggered Mechanism

Sicheng Deng, Tianwen Zheng, Xiaonan Lu, Laijun Chen, Shengwei Mei

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Plenary & Keynote

Wednesday, 13 October 2021

08:30 - 08:40

IECON2021 Opening Session

47th Annual Conference of the IEEE Industrial Electronics Society

Plenary & Keynote

Wednesday, 13 October 2021

08:40 - 09:10

IECON2021 Keynote 1: Uday Deshpande

Electrification: Trends across Industries, Implications to Engineers and Engineering

Dr. Uday Deshpande, CTO, D&V Electronics, USA

Chairs: Sheldon Williamson,

47th Annual Conference of the IEEE Industrial Electronics Society

Plenary & Keynote

Wednesday, 13 October 2021

09:10 - 09:40

IECON2021 Keynote 2: Lorenzo Rossi

Net Zero, pros and cons.

Lorenzo Rossi

Director of Workspport Ltd. & CEO of TerraVis Energy

Chairs: Sheldon Williamson,

Room A

Wednesday, 13 October 2021

10:00 - 11:20

T046 - TT Electrical Machines and Drives

Chairs: Giampaolo Buticchi, Giovanni Migliazza

10:00-10:13 Overview on the electromagnetic compatibility of a shielded room in the presence of wall sockets

Petrache Vicentiu, Petrache Ana Lavinia

Show (Yes/No): Comments:

10:13-10:26 Impact of Bearing Faults on Vibration Level of BLDC Motor

Karolina Kudelina, Toomas Vaimann, Anton Rassõlkin, Ants Kallaste

Show (Yes/No): Comments:

10:26-10:39 On-line loss and global efficiency simulation tool for electric vehicles applications

Charbel Zaghrini, Gabriel Houry, Maurice Fadel, Ragi Ghosn, Flavia Khatounian

Show (Yes/No): Comments:

10:39-10:52 Braking Induction Motors Using Soft Starter Torque and Flux Control Algorithm

Hauke Nannen, Heiko Zatocil, Gerd Griepentrog

Show (Yes/No): Comments:

10:52-11:05 Exciter Remanence Effect Mitigation in a Brushless Synchronous Generator for Test-field Applications

Antti Wredfors, Juhamatti Korhonen, Juha Pyrhönen, Markku Niemelä, Pertti Silventoinen

Show (Yes/No): Comments:

11:05-11:18 Online Estimation and Compensation of Back-Electromotive Forces for Synchronous Reluctance Machine

Laurent Schuller, Romain Delpoux, Jean-Yves Gauthier, Xavier Brun

Show (Yes/No): Comments:

Room B

Wednesday, 13 October 2021

10:00 - 11:20

T0410 - TT Electrical Machines and Drives

Chairs: Antonino Oscar Di Tommaso, Alessandro Serpi

10:00-10:13 Physical Model of Permanent Magnet Synchronous Machine with Multilayer Winding

Jan Laksar, Lukas Veg

Show (Yes/No): Comments:

10:13-10:26 Dynamic On-State Resistance Characterization of GaN FET under Hard-Switching Conditions

Shima Khoshzaman, Yikai Tang, Ingo Hahn

Show (Yes/No): Comments:

10:26-10:39 Observer based Sensorless Stator Temperature Estimation of an automotive 48V IPMSM

Christoph Cheshire, Tobias Roeser, Felix Gliese, Achim Vedde, Ulrich Ammann

Show (Yes/No): Comments:

10:39-10:52 Synchronous Reluctance Motor with fluid shaped barriers: preliminary and optimized design procedures

Andrea Credo, Giuseppe Fabri, Lino Di Leonardo, Marco Villani

Show (Yes/No): Comments:

10:52-11:05 Design and Analysis of a Double Coaxial Magnetic Coupling to Improve Torque Density

Yusuf Akcay, Oliver Tweedy, Paolo Giangrande, Michael Galea

Show (Yes/No): Comments:

11:05-11:18 Impact of Number of Nodes Used in 3D LPTN on the Results and Computational Time of the PMSM Validated by FEA and Measurement

Martin Skalicky, Roman Pechanek, Lukas Sobotka, Lukas Veg

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room C

Wednesday, 13 October 2021

10:00 - 11:20

IF1 - Industrial Internet

Talk 1: Time Sensitive Networking: Where the Cloud meets Reality (10:00 – 10:25 am)

Mr. Norman Finn, Network Standards Consultant (Huawei, USA)

Talk 2: Smart Distributed Control Energy Systems (10:25– 10:50 am)

Mr. Yongbin Sun, Vice President (China Techenergy Co. Ltd., China)

Talk 3: Universal Automation: the Missing Link for Industry 4.0 (10:50 – 11:15 am)

Mr. John Conway, Vice President (Schneider Electric Industries, SAS, France)

Chairs: Dr. Michael Condry,

47th Annual Conference of the IEEE Industrial Electronics Society

Room D

Wednesday, 13 October 2021

10:00 - 11:20

INTEROP1 - Automation

Smart Battery Gauge, Mo-Yuen Chow

P2805, William Dai

P2023, Lee Stogner

P2668, Kim Fung Tsang

OPEN DISCUSSIONS

Chairs: Dietmar Bruckner,

47th Annual Conference of the IEEE Industrial Electronics Society

Room E

Wednesday, 13 October 2021

10:00 - 11:20

T026 - TT Control System, Robotics and Automation

Chairs: Gabor Sziebig, Csaba Budai

10:00-10:13 **Formation Control of Multi-Robot System with Collision and Obstacle Avoidance by Novel APF**

Nabarun Sarkar, Alok Kanti Deb

Show (Yes/No): Comments:

10:13-10:26 **Yaw Channel Tracking Control of an AUV with Delayed Output**

Ravishankar Desai, Narayan Manjarekar

Show (Yes/No): Comments:

10:26-10:39 **Multi-Class Sensor Fault Isolation for Vehicle Dynamics with Decision Trees**

Max P. May, Oliver Sawodny

Show (Yes/No): Comments:

10:39-10:52 **Nonlinear Flatness-Based Observer for Vehicle Dynamics Control**

Simon Göltz, Daniel L. Ossig, Weixin Fu, Oliver Sawodny

Show (Yes/No): Comments:

10:52-11:05 **Dynamic Obstacles Avoidance Using Nonlinear Model Predictive Control**

Mukhtar Sani, Bogdan Robu, Ahmad Hably

Show (Yes/No): Comments:

Room F

Wednesday, 13 October 2021

10:00 - 11:20

T051 - TT Electronic System on Chip and Embedded Control

Chairs: Timo Hämäläinen, Wolfgang Kastner

10:00-10:13 **Is Arduino a suitable platform for sensor nodes?**

Dominik Widhalm, Karl M. Goeschka, Wolfgang Kastner

Show (Yes/No): Comments:

10:13-10:26 **Robust embedded MPC with reduced-precision arithmetic for cost-optimized implementations**

Aitor del Rio Ruiz, Koldo Basterretxea

Show (Yes/No): Comments:

10:26-10:39 **Opportunities For A Hardware-Based OPC UA Server Implementation In Industry 4.0**

Zohra Charania, Chris Paul Iatrou, Valentin Khaydarov, Robert Wittig, Heiner Bauer, René Bachmann, Philipp Bauer, Christian Mayr, Gerhard Fettweis, Leon Urbas

Show (Yes/No): Comments:

10:39-10:52 **Fault-Tolerant Routing in Networks-on-Chip Using Self-Organizing Routing Algorithms**

Aleksandr Romanov, Nikolay Myachin, Andrei Sukhov

Show (Yes/No): Comments:

10:52-11:05 **A Modern Approach to Application Specific Processors for Improving the Security of Embedded Devices**

Dominik Meyer, Jan Haase, Marcel Eckert, Bernd Klauer

Show (Yes/No): Comments:

11:05-11:18 **A Survey on System-on-a-Chip Design Using Chisel HW Construction Language**

Matti Käyrä, Timo Hämäläinen

Show (Yes/No): Comments:

Room G

Wednesday, 13 October 2021

10:00 - 11:20

T063 - TT Industrial Automation, Communication, Networking and Informatics

Chairs: Jan Haase, Alexander Fay

10:00-10:13 **Exact analysis for basic multi-rate cyclic executives**

Reinder J. Brill

Show (Yes/No): Comments:

10:13-10:26 **Ontology-based approach for analyzing nuclear overall I&C architectures**

Antti Pakonen, Teemu Mätäsniemi

Show (Yes/No): Comments:

10:26-10:39 **Optimized Propagation Delay Compensation for an Improved 5G RAN Synchronization**

Maximilian Schüngel, Steven Dietrich, David Ginthör, Shun-Ping Chen, Michael Kuhn

Show (Yes/No): Comments:

10:39-10:52 **RAP: A Ricardian Auctioning Protocol for Demand-Supply Matching using Open Bids**

Eric Chiquito, Ulf Bodin, Kåre Synnes

Show (Yes/No): Comments:

10:52-11:05 **AQUAMesh: A Low-Power Wide-Area Mesh Network protocol for Remote Monitoring Applications in Water Environments**

José Cecílio

Show (Yes/No): Comments:

11:05-11:18 **Evolutionary Algorithm for Incremental Scheduling in Systems of Systems with Real-Time Requirements**

Setareh Majidi, Roman Obermaisser

Show (Yes/No): Comments:

Room H

Wednesday, 13 October 2021

10:00 - 11:20

T124 - TT Signal and Image Processing and Computational Intelligence

Chairs: Jose A Antonino-Daviu, Hubert Razik

10:00-10:13 **FF-GAT: Feature Fusion Using Graph Attention Networks**

Ahmed N. Ahmed, Ali Anwar, Siegfried Mercelis, Steven Latré, Peter Hellinckx

Show (Yes/No): Comments:

10:13-10:26 **Insight into Frequency-Domain Extrapolations of Least-Squares-Based Curve Fitting Algorithms**

Weihua Zhou, Jef Beerten

Show (Yes/No): Comments:

10:26-10:39 **Investigations on Numerical Techniques for Detecting Variations in Acoustic Emissions**

Selvine George Mathias, Mathew John Mancha, Daniel Grossmann, Bernd Kujat, Kay Schiebold

Show (Yes/No): Comments:

10:39-10:52 **Block Matching Mosaicing for Surface Inspection Using an Autonomous Mobile Robot**

Sara Roos-Hoefgeest Toribio, Ignacio Alvarez Garcia, Rafael Corsino Gonzalez de los Reyes

Show (Yes/No): Comments:

10:52-11:05 **Deep Learning for Postharvest Decay Prediction in Apples**

Nikita Stasenko, Maxim Savinov, Valeriy Burlutskiy, Maria Pukalchik, Andrey Somov

Show (Yes/No): Comments:

11:05-11:18 **Enhanced Seismic Deconvolution by Side Lobe Suppression**

Ali Al-Shaikhi, Bo Liu, Mohamed Mohandes, Huijian Li, Xu Liu, Ling Zhao

Show (Yes/No): Comments:

Room I

Wednesday, 13 October 2021

10:00 - 11:20

T095 - TT Power Electronics & Energy Conversion

Chairs: Hasan KOMURCUGIL, Jacek Rabkowski

10:00-10:13 Disturbance Observer-Based Feedback Linearization Control for Stand-Alone Inverters

Samantha Stephen, Hussain Shareef, Rachid Errouissi, Amulya Viswambharan

Show (Yes/No): Comments:

10:13-10:26 A Robust Dynamic Compensator with Anti-windup Scheme for Grid-Interlinked Photovoltaic Inverter under Unbalanced Grid Voltages

Amulya Viswambharan, Rachid Errouissi, Hussain Shareef, Samantha Stephen

Show (Yes/No): Comments:

10:26-10:39 Understanding the Kelvin pin mitigation of the MOSFET turn-on losses by fast-switching and neutralization of the clamp diode

Francesco Giorgio, Santi Agatino Rizzo, Nunzio Salerno, Giuseppe Scarcella, Alfio Scuto, Giuseppe Sorrentino

Show (Yes/No): Comments:

10:39-10:52 Experimental characterization of materials with controlled Curie temperature for domestic induction heating applications

Alberto Pascual, Jesus Acero, Claudio Carretero, Sergio Llorente

Show (Yes/No): Comments:

10:52-11:05 Design of control strategy for active filter with 5-level CHB topology in delta connection

Zdenek Kehl, Tomas Glasberger, Zdenek Peroutka

Show (Yes/No): Comments:

11:05-11:18 A Comparative Study of Two Control Strategies for DC-DC Boost Converter Used in DC Microgrids

Qihao Guo, Imen Bahri, Demba Diallo

Show (Yes/No): Comments:

Room J

Wednesday, 13 October 2021

10:00 - 11:20

T103 - TT Power Systems and the Smart Grid

Chairs: Mo-Yuen Chow, Narayana Prasad Padhy

10:00-10:13 **Parameter Extraction of Power Entry Filters Using Probabilistic Approach**

Duc-Thanh Do, Holger Hirsch

Show (Yes/No): Comments:

10:13-10:26 **Emulation of Complex Grid Scenarios by using Power Hardware In the Loop (PHIL) Techniques**

Javier Roldan-Perez, Diana Moran-Rio, Dionysios Moutevelis, Pablo Rodriguez-Ortega, Njegos Jankovic, Mohammad Ebrahim Zarei, Milan Prodanovic

Show (Yes/No): Comments:

10:26-10:39 **A Neural Network Approach for Efficient Finite Control Set MPC of Cascaded H-Bridge STATCOM**

Francesco Simonetti, Giovanni Domenico Di Girolamo, Alessandro D'Innocenzo, Carlo Cecati

Show (Yes/No): Comments:

10:39-10:52 **Robust SoC Balancing Method for Distributed Storage based Islanded Microgrids**

Sidlawendé Ouoba, Azeddine Houari, Mohamed Machmoum

Show (Yes/No): Comments:

10:52-11:05 **Hardware In The Loop Simulation of the Smart Grid with the inclusion of IEC61850 Communication Protocol**

Harshavardhan Palahalli, Marziyeh Hemmati, Enrico Ragaini, Giambattista Gruosso

Show (Yes/No): Comments:

11:05-11:18 **Home EMS controlled by Neural Networks**

Pedro Pereira, João Freire

Show (Yes/No): Comments:

Room K

Wednesday, 13 October 2021

10:00 - 11:20

S251 - SS DataDriven Techniques Applicable to Smart Battery Management System to Improve Effective Battery Usage, Safety, and Reliability

Chairs: Janamejaya Channegowda, Flah Aymen

10:00-10:13 Comparing Switching Losses for Automatic and Program-Based Switched Capacitor Model for Active Cell Balancing

Gairik Das, Vipin Valsan

Show (Yes/No): Comments:

10:13-10:26 In-situ Parameter Identification of Cells in Grid-Connected Batteries

Thomas L Fantham, Daniel T Gladwin

Show (Yes/No): Comments:

10:26-10:39 Isolated Semi Integrated On-board Charger for EVs Equipped with 6-phase Traction Drives

Paolo Pescetto, Gianmario Pellegrino

Show (Yes/No): Comments:

10:39-10:52 SOH diagnostic and prognostic based on external health indicator of Lithium-ion battery

Enhui Liu, Niu Guangxing, Xuan Wang, Bin Zhang

Show (Yes/No): Comments:

10:52-11:05 SOH diagnostic and prognostic based on external health indicator of Lithium-ion battery

Enhui Liu, Niu Guangxing, Xuan Wang, Bin Zhang

Show (Yes/No): Comments:

11:05-11:18 Generalized Method for Designing Nonisolated Safety Standard Compliant Onboard Chargers for Electric Vehicles

Caniggia Viana, Sepehr Semsar, Mehanathan Pathmanathan, Peter Lehn

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room L

Wednesday, 13 October 2021

10:00 - 11:20

S381 - SS Hybrid Control Techniques and Topologies for Multilevel Power Converters

Chairs: Mohammad SHARIFZADEH, Hadi Y. KANAAN

10:00-10:13 **Digitization Effect in Implementation of Hybrid Modulation Technique in CHBMLI**

Vishal Jain, Rajesh Gupta

Show (Yes/No): Comments:

10:13-10:26 **A nine-level PEC based Active Power Filter With Double-Frequency Oscillation Cancellation (DFOC) Ability In Reference Current Detection**

Ali Zafari

Show (Yes/No): Comments:

10:26-10:39 **An Adaptive Fuzzy Passivity-based Control Strategy for Grid-Tied Packed E-Cell Converter**

Majid Mehrasa, Mohammad Babaie, Mohammad Sharifzadeh, Seddik Bacha, Kamal Al-Haddad

Show (Yes/No): Comments:

10:39-10:52 **Circuit Reconfiguration of Packed E-Cell Multilevel Inverter for Renewable Energy Applications**

Erfan Azimi, Mohammad Sharifzadeh, Majid Mehrasa, Kamal Al-Haddad

Show (Yes/No): Comments:

10:52-11:05 **Optimal Switching Sequence MPC for Hybrid Flying Capacitor Inverter**

Margarita Norambuena, Guillermo Huerta, Pablo Lezana, Andres Mora

Show (Yes/No): Comments:

11:05-11:18 **Magnetic Shielding as Core material in Planar Inductors**

Alex Fihl Hedegaard Nielsen, Anders Juhl Jørgensen, Ziwei Ouyang

Show (Yes/No): Comments:

Room M

Wednesday, 13 October 2021

10:00 - 11:20

S432 - SS IoT Automation Technologies, Tools and Applications

Chairs: Pal Varga, Federico Montori

10:00-10:13 **An AAS Modeling Tool for Capability-Based Engineering of Flexible Production Lines**

Yining Huang, Saadia Dhouib, Jacques Malenfant

Show (Yes/No): Comments:

10:13-10:26 **Two-way Integration of Service-Oriented Systems-of-Systems with the Web of Things**

Ivan Zyrianoff, Lorenzo Gigli, Federico Montori, Carlos Kamienski, Marco Di Felice

Show (Yes/No): Comments:

10:26-10:39 **Interoperability for Industrial Internet of Things Based on Service-oriented Architecture**

An Ngoc Lam, ØYstein Haugen, Jerker Delsing

Show (Yes/No): Comments:

10:39-10:52 **Web of Things Interoperability for the Arrowhead Framework**

Junior Dongo, Michele Albano, Arne Skou, Brian Nielsen

Show (Yes/No): Comments:

10:52-11:05 **A Toolchain Architecture for Condition Monitoring Using the Eclipse Arrowhead Framework**

Federico Montori, Zyrianoff Ivan, Gigli Lorenzo, Riccardo Venanzi, Simone Sindaco, Federica Zonzini, Nicola Testoni, Marco Di Felice, Luca De Marchi, Tullio Salmon Cinotti

Show (Yes/No): Comments:

11:05-11:18 **Enabling Industrial Motion Control through IIoT Multi-Agent Communication**

Razvan Luchian, Sabin Rosioru, Iulia Stamatescu, Ioana Fagarasan, Grigore Stamatescu

Show (Yes/No): Comments:

Room N

Wednesday, 13 October 2021

10:00 - 11:20

S152 - SS Advances in Renewable Energy Systems Condition Monitoring and Prognosis using Machine Learning

Chairs: Mohamed Benbouzid, Sinisa Durovic

10:00-10:13 Renewable Energy Systems Prognostics and Health Management: A Review of Recent Advances

Lotfi Saidi, Mohamed Benbouzid

Show (Yes/No): Comments:

10:13-10:26 Sequence-To-Sequence Health Index Estimation of Rolling Bearings with Long-Short Term Memory and Transfer Learning

Tarek Berghout, Mohamed Benbouzid, Leïla-Hayet Mouss

Show (Yes/No): Comments:

10:26-10:39 Fault Detection in Soft-started Induction Motors using Convolutional Neural Network Enhanced by Data Augmentation Techniques

Dario Pasqualotto, Angela Navarro, Vicente Biot-Monterde, Mauro Zigliotto, Jose Antonino-Daviu

Show (Yes/No): Comments:

10:39-10:52 Machine Learning for Photovoltaic Systems Condition Monitoring: A Review

Tarek Berghout, Mohamed Benbouzid, Xiandong Ma, Sinisa Durovic, Leïla-Hayet Mouss

Show (Yes/No): Comments:

10:52-11:05 Machine Learning Experiments for a Real-Time Energy Management in a Microgrid Cluster

David Rosero-Bernal, Enrique A. Sanabria-Torres, Fabio Andrade-Rengifo, Nelson L. Diaz, Cesar L. Trujillo

Show (Yes/No): Comments:

11:05-11:18 Extended Speed Range Control for a Current Source Inverter Variable Speed Drive

Giovanni Migliazza, Emilio Carfagna, Giampaolo Buticchi, Fabio Immovilli, Emilio Lorenzani

Show (Yes/No): Comments:

Room A

Wednesday, 13 October 2021

11:30 - 12:50

T0413 - TT Electrical Machines and Drives

Chairs: Qingsong Wang, Chunyan Lai

11:30-11:43 Power Hardware-in-the-Loop based Emulation of An Induction Machine with Stator Winding Faults

Yupeng Liu, Lebohang Ralikalakala, Paul Barendse, Pragasen Pillay

Show (Yes/No): Comments:

11:43-11:56 Detection of Broken Rotor Bars in Induction Motors through the k-NN Algorithm Combined with a Deterministic-Stochastic Subspace Method for System Identification

Raissa Raimundo da Silva, Mateus Giesbrecht

Show (Yes/No): Comments:

11:56-12:09 Analysis of Open Phase and Phase-to-Phase Short Circuit Fault of PMSM for Electrical Propulsion in an eVTOL

John Ramoul, Gayan Watthewaduge, Alan Dorneles Callegaro, Babak Nahid-Mobarakeh, Armen Baronian, Ali Emadi

Show (Yes/No): Comments:

12:09-12:22 High-Frequency Signal Injection Based Adaptive Full-Order Observer for Low-Speed Sensorless IPMSM Drives

Cesar José Volpato Filho, Rodrigo Padilha Vieira

Show (Yes/No): Comments:

12:22-12:35 Adaptive Flux Weakening Controller for Dual Three-Phase PMSM Drives in Vector Space Decomposition

Wesam Taha, Diego F. Valencia, Zisui Zhang, Babak Nahid-Mobarakeh, Ali Emadi

Show (Yes/No): Comments:

12:35-12:48 High Torque Density Traction Motor Using Soft Magnetic Composites Material with Surface Ring-type Halbach-array PM Rotor Topology

Sumeet Singh, Pragasen Pillay

Show (Yes/No): Comments:

Room B

Wednesday, 13 October 2021

11:30 - 12:50

S361 - SS High Power Multilevel Converters Topologies, Combination of Converters, Modulation and Control

Chairs: Alain Sanchez, Iosu Marzo

11:30-11:43 Reactive Power Limits of Single-Phase and Three-Phase DC-Link VSC STATCOMs under Negative-Sequence Voltage and Current

Iosu Marzo, Jon Andoni Barrena, Alain Sanchez-Ruiz, Gonzalo Abad, Ignacio Muguruza

Show (Yes/No): Comments:

11:43-11:56 Error Tolerance Analysis for SHE-PWM Calculation in a 3L-NPC Converter

Irati Ibanez-Hidalgo, Alain Sanchez-Ruiz, Angel Perez-Basante, Salvador Ceballos, Asier Zubizarreta, Yunwei Li, Zhongyi Quan

Show (Yes/No): Comments:

11:56-12:09 Methodology to Compare Meta-heuristic Algorithms to Solve Selective Harmonic Elimination-PWM and Optimal Pulse Pattern Formulations

Irati Ibanez-Hidalgo, Izaskun Oregi, Sergio Gil-Lopez, Angel Perez-Basante, Alain Sanchez-Ruiz, Ainhoa Pujana, Asier Zubizarreta, Salvador Ceballos

Show (Yes/No): Comments:

12:09-12:22 Target Current Modulation as a Novel Approach for Active Balancing in Automotive MMSPCs

Tobias Merz, Nils Hellmann, Eduard Specht, Marc Hiller

Show (Yes/No): Comments:

12:22-12:35 Experimental Comparative Analysis of Efficiency and THD for a Three-phase Five-level Cascaded H-Bridge inverter Controlled by Several MC-PWM Schemes

Giuseppe Schettino, Claudio Nevoloso, Rosario Miceli, Antonino Oscar Di Tommaso, Giocchino Scaglione, Carlo Cecati, Concettina Buccella

Show (Yes/No): Comments:

12:35-12:48 Electromagnetic Losses Minimization in High-Speed Flywheel Energy Storage Systems

Andrea Floris, Alfonso Damiano, Alessandro Serpi

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room C

Wednesday, 13 October 2021

11:30 - 12:50

S&YP - Students & Young Professionals

Welcome by IEEE IES President and Introduction to the IEEE IES Student & Young Professionals (S&YP).

Prof. Marek Jasinski, Warsaw University of Technology, Poland, IEEE IES S&YP Activity Committee

Prof. Terry Martin, University of Arkansas, USA, IEEE IES President

Prof. Sheldon Williamson, OntarioTech University, Canada, IEEE IECON General Chairperson

S&YP – 3 Minutes Speeches.

Chair: Hani Vahedi, Andrii Chub, Marek Turzynski

47th Annual Conference of the IEEE Industrial Electronics Society

Room D

Wednesday, 13 October 2021

11:30 - 12:50

T082 - TT New Technologies for Electric Transportation

Chairs: Ritesh keshri, Giambattista Gruosso

11:30-11:43 **Adaptive Voltage Controller for Flux-weakening Operation in PMSM Drives**

Zisui Zhang, Babak Nahid-Mobarakeh, Ali Emadi

Show (Yes/No): Comments:

11:43-11:56 **Electric Vehicle Smart Charging to Maximize Renewable Energy Usage in a Single Residence**

Kartik V. Sastry, Thomas F. Fuller, Santiago Grijalva, David G. Taylor, Michael J. Leamy

Show (Yes/No): Comments:

11:56-12:09 **Non-Dominated Sorting Genetic Algorithm Based Determination of Optimal Torque-Split Ratio for a Dual-Motor Electric Vehicle**

Marco Veliz Castro, Shruthi Mukundan, Claudio Lopes Filho, Glenn Byczynski, Bruce Minaker, Jimi Tjong, Narayan Kar

Show (Yes/No): Comments:

12:09-12:22 **SoC Estimation Techniques for Efficient Agricultural Robots**

German Monsalve, Alben Cardenas, Wilmar Martinez

Show (Yes/No): Comments:

12:22-12:35 **Mission Profile-Oriented Active Thermal Control of a Bidirectional Three-Level Buck-Boost GaN-Based DC-DC Converter for Electric Vehicles Powertrains**

Christian A. Rojas, Ruben Gonzalez, Leonardo Callegaro, Hector Young

Show (Yes/No): Comments:

12:35-12:48 **Pack-Level Electrochemical Impedance Spectroscopy in EV Batteries Enabled by a DC Fast Charger**

Zhe Gong, Seyed A. Assadi, Seif Sarofim, Michelle Tessy, Dylan Lamont, Aurora Nowicki, Joshua Piruzza, Khalid Fatih, Yeong Yoo, Olivier Trescases

Show (Yes/No): Comments:

Room E

Wednesday, 13 October 2021

11:30 - 12:50

T0211 - TT Control System, Robotics and Automation

Chairs: Valeriy Vyatkin, Gabor Sziebig

11:30-11:43 Control of a Sun Tracking Robot Based on Adaptive Sliding Mode Control with Kalman Filtering and Model Predictive Control

Jan-Philip Rehbein, Benedikt Haus, Paolo Mercorelli

Show (Yes/No): Comments:

11:43-11:56 Inferring Cost Functions Using Reward Parameter Search and Policy Gradient Reinforcement Learning

Emir Ardit, Tjasa Kunavar, Emre Ugur, Jan Babic, Erhan Oztop

Show (Yes/No): Comments:

11:56-12:09 Cascaded Kalman Filters for a Sliding Mode Control in a Peltier Structure for a Innovative Manufacturing System

Felix van Rossum, Benedikt Haus, Paolo Mercorelli, Andreas Zedler

Show (Yes/No): Comments:

12:09-12:22 Multi-Quadcopter Formation Control Using Sampled-Data Event-Triggered Communication With Gain Optimization

Zipeng Huang, Ya-Jun Pan, Robert Bauer

Show (Yes/No): Comments:

12:22-12:35 A Comparative Study of Sliding-Mode-Based Control Strategies of a Quad-Rotor UAV

Enrique Paiva, Hector Fretes, Jorge Rodas, Maarouf Saad, Yassine Kali, Jose Luis Lesme, Fernando Lesme

Show (Yes/No): Comments:

12:35-12:48 Robust Predictor Feedback Input Delay Compensation with Application to Daylight Harvesting Control

Afagh Mohagheghi, Mehrdad Moallem

Show (Yes/No): Comments:

Room F

Wednesday, 13 October 2021

11:30 - 12:50

T074 - TT Motion Control and Mechatronics

Chairs: Michael Ruderman, Antonio Luque

11:30-11:43 Trajectory Planning and Sliding-Mode Velocity Control for an Under-Actuated Hovercraft Vehicle

Lukas Pröhl, Harald Aschemann

Show (Yes/No): Comments:

11:43-11:56 Damping Controller Design for a DFIM-based Shredder Drive using H-Infinity Optimization

Florian Bendrat, Constantinos Sourkounis

Show (Yes/No): Comments:

11:56-12:09 Model Predictive Control of a High Power Rolling-Mill Drive Considering Shaft Torque Constraints

Daniel Binder, Florian Bendrat, Constantinos Sourkounis

Show (Yes/No): Comments:

12:09-12:22 Acceleration feedback concepts for dynamic emulation of mechanical loads

Michael Epp, Martin Griese, Thomas Schulte

Show (Yes/No): Comments:

12:22-12:35 Coil Switching and Control of an Iron Core Moving Magnet Linear Motor

Pai-Hsueh Yang, Koichi Sakata, Gaurav Keswani

Show (Yes/No): Comments:

12:35-12:48 On the Design and Development of Vision-Based Autonomous Mobile Manipulation

Shafiqul Islam, Jorge Dias, Anderson Sunda-Meya

Show (Yes/No): Comments:

Room G

Wednesday, 13 October 2021

11:30 - 12:50

T066 - TT Industrial Automation, Communication, Networking and Informatics

Chairs: Jan Haase, Luis Gomes

11:30-11:43 Towards a Quantitative Time Analysis and Decision Support for the Deployment of AI-Algorithms in Distributed Cyber-Physical Production Systems

Dominik Hujo, Birgit Vogel-Heuser, Marius Krüger, Fabian Schuhmann

Show (Yes/No): Comments:

11:43-11:56 Accelerating of Feature Recognition of Weld Joints in Siemens NXOpen with Numba JIT and Parallelization

Tuan Tran, Andrei Lobov

Show (Yes/No): Comments:

11:56-12:09 Worst-Case Stealthy False-Data Injection Attacks on Remote State Estimation

Jing Zhou, Jun Shang, Tongwen Chen

Show (Yes/No): Comments:

12:09-12:22 Decision Graph and Matrix Visualization during Interdisciplinary Engineering Collaboration

Haya Elaraby, Xintong He, Minjie Zou, Alison Olechowski, Dorothea Pantförder, Greg Jamieson, Birgit Vogel-Heuser

Show (Yes/No): Comments:

12:22-12:35 Data-driven Bottom-up Cluster-tree Formation based on the IEEE 802.15.4/ZigBee Protocols

Miguel Lino Ferreira Neto, Carlos Barros Montez, Erico Leão, Aujor Tadeu Cavalca Andrade

Show (Yes/No): Comments:

Room H

Wednesday, 13 October 2021

11:30 - 12:50

T125 - TT Signal and Image Processing and Computational Intelligence

Chairs: Yang Shi, Mohammad Babaei

11:30-11:43 Learned Gradient Descent Performance in Bicubic Super-Resolution Task

Iaroslav Koshelev, Andrey Somov

Show (Yes/No): Comments:

11:43-11:56 Stochastic Expectation Propagation Learning of Infinite Multivariate Beta Mixture Models for Human Tissue Analysis

Narges Manouchehri, Nizar Bouguila

Show (Yes/No): Comments:

11:56-12:09 A Critical Study on the Impact of Missing Data Imputation for Classifying Intrusions in Cyber-Physical Water Systems

Roozbeh Razavi-Far, Ehsan Hallaji, Maryam Farajzadeh-Zanjani, Ranim Aljoudi, Mehrdad Saif

Show (Yes/No): Comments:

12:09-12:22 3D Printing Deformation Estimation Using Artificial Vision Strategies for Smart-Construction

Juan Villacrés, Robert Guamán, Oswaldo Menéndez, Fernando Auat Cheein

Show (Yes/No): Comments:

12:22-12:35 Time Optimal Operation of Flexural Ultrasonic Transducers For Enhanced Ranging

Aravind B. Balasubramanian, Kartik V. Sastry, David P. Magee, David G. Taylor

Show (Yes/No): Comments:

12:35-12:48 3-D Ultrasonic Sensing in Air with a Narrowband Transmitter and a Receiver Microphone Array

Aravind B. Balasubramanian, David P. Magee, David G. Taylor

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room I

Wednesday, 13 October 2021

11:30 - 12:50

T099 - TT Power Electronics & Energy Conversion

Chairs: Akshay Rathore, Kamal Al-Haddad

11:30-11:43 Control of Soft Switching Solid State Transformer based on Lyapunov Energy Function for Three-phase AC-AC Power Conversion

Vikram Roy Chowdhury, Rajendra Prasad Kandula, Deepak Divan

Show (Yes/No): Comments:

11:43-11:56 Analytical EMI Modeling of an Active Neutral Point Clamped Inverter

Fatemeh AbolqasemiKharanaq, Ali Emadi, Berker Bilgin

Show (Yes/No): Comments:

11:56-12:09 Enhancement of A Photovoltaic Inverter Efficiency Using A Shade-Tolerant MPPT

Seyedkazem Hosseini, Shamsodin Taheri, Edris Pouresmaeil, Diego Espinoza-Trejo

Show (Yes/No): Comments:

12:09-12:22 BEM Model Extended to Analyze the Performance of Medium and Large Size Wind Turbines

Hercules Oliveira, Jose De Matos, Luiz Ribeiro, Osvaldo Saavedra, Cesar Branco

Show (Yes/No): Comments:

12:22-12:35 Lyapunov Energy Function Based Control of a PV Based Current Source Inverter under Unbalanced Grid Voltage Condition

Vikram Roy Chowdhury, Md Multan Biswas, Dhiman Chowdhury

Show (Yes/No): Comments:

12:35-12:48 A Bidirectional DC-DC Converter with High Conversion Ratios for the Electrical Vehicle Application

Reza Rezaii, Mohammad Nilian, Md Safayatullah, Sumana Ghosh, Issa Batarseh

Show (Yes/No): Comments:

Room J

Wednesday, 13 October 2021

11:30 - 12:50

T105 - TT Power Systems and the Smart Grid

Chairs: Imad Mougharbel, Nazih Moubayed

11:30-11:43 Artificial Neural Network Aided Cable Resistance Estimation in Droop-Controlled Islanded DC Microgrids

Habibu Hussaini, Tao Yang, Yuan Gao, Cheng Wang, Mohamed A. A. Mohamed, Serhiy Bozhko

Show (Yes/No): Comments:

11:43-11:56 Real-time Model Development of the IEEE Benchmark Distribution Feeder Test System for Microgrid Stability and Controls

Hamed Nademi, James Choi, Prottay Adhikari, Luigi Vanfretti, Shehab Ahmed, Kourosh Sedghisigarchi

Show (Yes/No): Comments:

11:56-12:09 Distributed Cooperative LFC Protocols for Regulation Synchronization for Networked Multi-area Power Grid Networks

Shafiqul Islam, Anderson Sunda-Meya, Jorge Dias

Show (Yes/No): Comments:

12:09-12:22 Robust Adaptive Load Frequency Control for Multi-area Power System Grid Networks with Uncertainty

Shafiqul Islam, Anderson Sunda-Meya

Show (Yes/No): Comments:

12:22-12:35 Anomaly Detection In Smart Grids Using Machine Learning

Prem kumar reddy Shabad, Abdulmueen Alrashide, Osama Mohammed

Show (Yes/No): Comments:

Room K

Wednesday, 13 October 2021

11:30 - 12:50

S582 - SS Power Electronics Converters for Green Energy Supplies Topology, Modeling, Control, and Stability Analysis

Chairs: Nitin Gupta, Man Mohan Garg

11:30-11:43 **Dynamic Modelling Requirements for Tuning of Cascaded Voltage and Current Loops in VSMs**

Shuan Dong, Yu Christine Chen

Show (Yes/No): Comments:

11:43-11:56 **On the Analysis of Quasi-Discontinuous Modulations for Dual-Active-Bridge**

Pablo Guzman, Nimrod Vazquez, Marco Liserre, Rodolfo Orosco, Jaime Arau, Claudia Hernandez

Show (Yes/No): Comments:

11:56-12:09 **Modeling and Simulation of a Reduced-Order Single-Phase PQ Inverter Using the Dynamic Phasor Method**

Udoka C. Nwaneto, Andrew M. Knight

Show (Yes/No): Comments:

12:09-12:22 **Dynamic Phasor Modeling and Control of a Single-Phase Single-Stage Grid-Connected PV System**

Udoka C. Nwaneto, Andrew M. Knight

Show (Yes/No): Comments:

12:22-12:35 **A Coupled Inductor-Based Dual-Switch High Step-up DC-DC Converter with Common Ground**

Saeed Habibi, Ramin Rahimi, Mehdi Ferdowsi, Pourya Shamsi

Show (Yes/No): Comments:

12:35-12:48 **Experimental Comparison of High-Power Soft-Switching Boost Converters with Auxiliary Switches**

Minh-Khai Nguyen, Nima Abdolmaleki, Jianfei Chen, Caisheng Wang, Zhigang Yao, Shilei Zhou, Jiaoke Zheng

Show (Yes/No): Comments:

Room L

Wednesday, 13 October 2021

11:30 - 12:50

S382 - SS Hybrid Control Techniques and Topologies for Multilevel Power Converters

Chairs: Mohammad SHARIFZADEH, Kamal Al-Haddad

11:30-11:43 Novel Switched-Capacitor Compact Multilevel Converter Based on Packed E-Cell Design with Fault Tolerant Operation

Mohammad Sharifzadeh, Mohammadali Ahmadijokani, Majid Mehrasa, Mahdieh Sadabadi, Kamal Al-Haddad

Show (Yes/No): Comments:

11:43-11:56 A Novel Sensor-less Voltage Balancing on PUC5 to Reduce the Size of Flying Capacitor

Saeed Arazm, Rawad Zgheib, Kamal Al-Haddad

Show (Yes/No): Comments:

11:56-12:09 Grid Integration of an enhanced Packed E-Cell Inverter for Renewable Energy Applications

Erfan Azimi, Majid Mehrasa, Mohammad Sharifzadeh, Leopoldo Franquelo, Seddik Bacha, Kamal Al-Haddad

Show (Yes/No): Comments:

12:09-12:22 Systematic Design of Improved Lead-Lag Direct Power Model Predictive Controller for Multilevel Active-Front-End Rectifier: A Comparative Study

Mostafa Abarzadeh, Armin Ebrahimian, Waqar A. Khan, Nathan Weise, Kamal Al-Haddad

Show (Yes/No): Comments:

12:22-12:35 Efficiency Analysis of Conduction Losses in Modular Multilevel Converters with Parallel Functionality

Nima Tashakor, Bitar Arabsalmanabadi, Yi Zhang, Kamal Al-Haddad, Stefan Goetz

Show (Yes/No): Comments:

12:35-12:48 Parameter Estimation of Batteries in MMCs with Parallel Connectivity using PSO

Bitar Arabsalmanabadi, Nima Tashakor, Yi Zhang, Kamal Al-Haddad, Stefan Goetz

Show (Yes/No): Comments:

Room M

Wednesday, 13 October 2021

11:30 - 12:50

S024 - SS Advanced Control of GridConnected Converters for Distributed Generation and Power Quality

Chairs: Hadi Y. KANAAN, Fadia SEBAALY

11:30-11:43 Adaptive Virtual Inertia Synthesis via Enhanced Dispatchable Virtual Oscillator Controlled Grid-Tied Inverters

Sima Azizi Aghdam, Mohammed Agamy

Show (Yes/No): Comments:

11:43-11:56 Self-synchronization Scheme for Network of Grid-following and Grid-forming Photovoltaic Inverters

Shantanu Gupta, Muhammad F. Umar, Mohammad B. Shadmand, Sudip Mazumder

Show (Yes/No): Comments:

11:56-12:09 Model predictive control for single-stage grid-tied three-port dc-dc-ac converter based on dual active bridge and interleaved boost topology

Md Safayatullah, Sumana Ghosh, Sahin Gullu, Issa Batarseh

Show (Yes/No): Comments:

12:09-12:22 Fault-Tolerant Z-Source-based Isolated DC-DC Building Blocks for Mission-Critical DC Distribution Applications

Hussain Sayed, Harish S. Krishnamoorthy

Show (Yes/No): Comments:

12:22-12:35 Isolated Quasi-Switched Boost Series Resonant DC-DC Converter

Minh-Khai Nguyen, Truong-Duy Duong, Anh-Dung Nguyen, Caisheng Wang, Young-Cheol Lim, Joon-Ho Choi

Show (Yes/No): Comments:

12:35-12:48 AC/DC Converter based on Dual Active Bridge with Reactive Power Management

Pablo Guzman, Nimrod Vazquez, Marco Liserre, Rodolfo Orosco, Jaime Arau, Claudia Hernandez

Show (Yes/No): Comments:

Room A

Thursday, 14 October 2021

07:00 - 08:20

T042 - TT Electrical Machines and Drives

Chairs: Xuan Wang, Christopher H. T. Lee

07:00-07:13 Analysis of Vernier Machine with Stator-V-Shaped Permanent-Magnet Arrangement

Fawen Shen, Yuming Yan, Shanmukha Ramakrishna, Chandana Jayampathi Gajanayake, Shuai Wang, Christopher H. T. Lee

Show (Yes/No): Comments:

07:13-07:26 Design of a Decoupled Double-Stator Flux-Switching Permanent-Magnet Rotary-Linear Motor with Two Degree-of-Freedom Motion

Yaojie He, Hao Chen, Christopher H. T. Lee

Show (Yes/No): Comments:

07:26-07:39 Harmonic Reduction for Two-Slot Pitch Winding Permanent Magnet Vernier Machines with Stator Shifting Technique

Shuangchun Xie, Hao Chen, Libing Cao, Yuefei Zuo, Xin Yuan, Boon Siew Han, Chi Cuong Hoang, Christopher H. T. Lee

Show (Yes/No): Comments:

07:39-07:52 A Novel Fault Tolerant Flux Switching Memory Machine with Highly Flux Controllability

Yuming Yan, Fawen Shen, Ramakrishna Shanmukha, Chandana Jayampathi Gajanayake, Shuai Wang, Christopher H.T. Lee

Show (Yes/No): Comments:

07:52-08:05 Position Sensorless Torque Ripple Control of Switched Reluctance Motor Drive using B-Spline Neural Network

Chetan S. Matwankar, Sumit Pramanick, Bhim Singh

Show (Yes/No): Comments:

08:05-08:18 The Online Stator Winding Insulation Monitoring for PMSG-PWM rectifier System under Various Working Conditions

Dayong Zheng, Geye Lu, Yanyong Yang, Qinghao Zhang, Pinjia Zhang

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room B

Thursday, 14 October 2021

07:00 - 08:20

S621 - SS Power Electronics for Transportation Electrification Applications

Chairs: Tarcio André dos Santos Barros, Marcelo Vinicius de Paula

07:00-07:13 Design and Analysis of 10 kW Electric Vehicle Charging Station

Indranil Banerjee, Mayank Mukesh, Shivam Prakash Gautam, Vikas Kumar

Show (Yes/No): Comments:

07:13-07:26 Simulation Assessment of the Impact of Pulsed Loads in DC Shipboard Microgrid

Luona Xu, Baoze Wei, Yun Yu, Juan C. Vasquez, Josep M. Guerrero

Show (Yes/No): Comments:

07:26-07:39 A review on single-phase, single-stage OBC topologies for EVs with 48~V powertrains

Thilini Wickramasinghe, Bruno Allard, Nicolas Allali

Show (Yes/No): Comments:

07:39-07:52 Efficiency Evaluation of Six-Phase VSI and NSI for 400V and 800V Electric Vehicle Powertrains

Saif Absar, Wesam Taha, Ali Emadi

Show (Yes/No): Comments:

07:52-08:05 Performance Evaluation of Space Vector PWM Methods with DC Link Voltage Control for EV/HEV Powertrains

Haleema Qamar, Hafsa Qamar, Rajapandian Ayyanar

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room C

Thursday, 14 October 2021

07:00 - 08:20

T111 - TT Sensors, Actuators, Systems Integration and Nano-technologies

Chairs: Mingsi Tong, Qingsong Xu

07:00-07:13 **Design and Analysis of a Piezoelectric-Actuated Biaxial Asymmetrical Compliant Micromanipulator**

Zekui Lyu, Qingsong Xu

Show (Yes/No): Comments:

07:13-07:26 **A New Closed-barrier Covering Optimization Method for Heterogeneous Nodes in Hybrid Wireless Sensor Networks**

Peng Wang, Yonghua Xiong, Jinhua She

Show (Yes/No): Comments:

07:26-07:39 **Payload Estimation for Hydraulic Excavators Using a Depth Camera**

Hiroshi Yoshida, Tatsuya Yoshimoto

Show (Yes/No): Comments:

07:39-07:52 **DAWSSM: A plug-and-play Drone Assisted Water Sampling and Sensing Module**

Digvijay Singh, Rishabh Singh, Rahul Ajmeria, Manik Gupta, Ponnalagu R N

Show (Yes/No): Comments:

07:52-08:05 **Development of a Magnetic Absolute Encoder Using Eccentric Structure and Long Short-Term Memory**

Akishi Takeyama, Shota Komatsuzaki, Keita Sado, Yuki Nagatsu, Hideki Hashimoto

Show (Yes/No): Comments:

08:05-08:18 **Smart home wireless sensor networks lifetime optimizing using Q-learning.**

Ismael Jrhilifa, Hamid Ouadi, Abdelilah Jilbab

Show (Yes/No): Comments:

Room D

Thursday, 14 October 2021

07:00 - 08:20

S061 - SS Advanced Technologies for Inductive Power Transfer

Chairs: Chaoqiang Jiang, Teng Long

07:00-07:13 Analysis of Inductor Current for Series Resonant Tank at Different Practical Operating Conditions

Sayan Sarkar, Wing Hung ki, Yao Yuan

Show (Yes/No): Comments:

07:13-07:26 Resonant Frequency Characteristics of a Wireless Power Transfer System based on Dual-Receiver Configuration without Cross Coupling

Shohei Komeda, Rin Arai

Show (Yes/No): Comments:

07:26-07:39 An Online Switching Frequency Modulation for Power Fluctuation Minimization of Non-Stationary Wireless Power Transfer

Weizhou Ye, Jannis Noeren, Lukas Elbracht, Nejila Parspour

Show (Yes/No): Comments:

07:39-07:52 A measurement method for the characterization of the ferromagnetic bottom layer of cookware used in domestic induction heating

Felix Rehm, Patrick Breining, Marc Hiller

Show (Yes/No): Comments:

07:52-08:05 Effect of Hybrid Modulation on Performance of Wireless Battery Charger Operating in CC/CV Mode

Deniss Stepins, Kathari Neeraja, Janis Zakis, Oleksandr Husev, Bohdan Pakhaliuk, Victor Shevchenko

Show (Yes/No): Comments:

08:05-08:18 Computational Feasibility of Multi-objective Optimal Design Techniques for Grid-Connected Multi-cell Solid-State-Transformers

Jaydeep Saha, Naga Brahmendra Yadav Gorla, Aravinth Subramaniam, Sanjib Kumar Panda

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room E

Thursday, 14 October 2021

07:00 - 08:20

T022 - TT Control System, Robotics and Automation

Chairs: Tong Wang, Duanjin Zhang

07:00-07:13 Two-Phase Jointly Optimal Strategies and Winning Regions of the Capture-the-Flag Game

Zhao Zhou, Jiahao Huang, Jiapeng Xu, Yang Tang

Show (Yes/No): Comments:

07:13-07:26 Investigation on Fractional Order Controller Using Ball-and-Beam System

Monika Sharma, Bharat Singh Rajpurohit

Show (Yes/No): Comments:

07:26-07:39 Robust Stackelberg Strategy for Stochastic LPV Systems and Application to Wind Power Generator

Muneomi Sagara, Hiroaki Mukaidani, Hua Xu

Show (Yes/No): Comments:

07:39-07:52 Fault and Attack Collaborative Detection for Cyber-Physical System in Complex Network Environment using Delta Operator

Zheng Du, Li Zhang, Mengkai Liu, Jianxun Zhou, Duanjin Zhang

Show (Yes/No): Comments:

07:52-08:05 Configuration-aware Model Predictive Motion Planning in Narrow Environment for Autonomous Tractor-trailer Mobile Robot

Nobuaki Ito, Hiroyuki Okuda, Shinkichi Inagaki, Tatsuya Suzuki

Show (Yes/No): Comments:

08:05-08:18 Inertial-Kinect Fusion for Robot Navigation based on the Extended Kalman Filter

Xiaoyue Sang, Zhaohui Yuan, Xiaojun Yu

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room F

Thursday, 14 October 2021

07:00 - 08:20

T072 - TT Motion Control and Mechatronics

Chairs: Changzhu ZHANG, Chuanzhi Zang

07:00-07:13 Absolute Angle Calculation for Magnetic Encoder Based On Magnetic Flux Density Difference

Shota Komatsuzaki, Akishi Takeyama, Keita Sado, Yuki Nagatsu, Hideki Hashimoto

Show (Yes/No): Comments:

07:13-07:26 Band-Stop Bandwidths Adjustment for a Periodic Disturbance Observer

Hiroki Tanaka, Hisayoshi Muramatsu

Show (Yes/No): Comments:

07:26-07:39 A Study on Motor Control Method within Temperature Limit of Coil for Improving Motor Performance

Kenta Iizuka, Yuki Nagatsu, Hideki Hashimoto

Show (Yes/No): Comments:

07:39-07:52 Design of Trajectory Generator of a Glass Facade Cleaning Robot

Kouki Kanbe, Shunsuke Nansai, Hiroshi Itoh

Show (Yes/No): Comments:

07:52-08:05 Imitation learning for variable speed motion generation over multiple actions

Yuki Saigusa, Ayumu Sasagawa, Sho Sakaino, Toshiaki Tsuji

Show (Yes/No): Comments:

08:05-08:18 Implementation of assembly task based on guided policy search algorithm

Qingwei Dong, Chuanzhi Zang, Peng Zeng, Guangxi Wan, Yunpeng He, Xiaoting Dong

Show (Yes/No): Comments:

Room G

Thursday, 14 October 2021

07:00 - 08:20

T062 - TT Industrial Automation, Communication, Networking and Informatics

Chairs: Ye Zhao, Qimin Xu

07:00-07:13 Highest Wellbore Stability Obstacle Avoidance Drilling Trajectory Optimization in Complex Multiple Strata Geological Environment

Jiafeng Xu, Xin Chen, Min Wu, Weihua Cao

Show (Yes/No): Comments:

07:13-07:26 Clock Synchronization Based on Non-Parametric Estimation Considering Dynamic Delay Asymmetry

Yafei Sun, Qimin Xu, Xiang Chen, Qiwen Yun, Cailian Chen

Show (Yes/No): Comments:

07:26-07:39 Flexible Switching Architecture with Virtual-Queue for Time-Sensitive Networking Switches

Qiwen Yun, Qimin Xu, Yanzhou Zhang, Yingxiu Chen, Yafei Sun, Cailian Chen

Show (Yes/No): Comments:

07:39-07:52 CANS: Communication Limited Camera Network Self-Configuration for Intelligent Industrial Surveillance

Jingzheng Tu, Qimin Xu, Cailian Chen

Show (Yes/No): Comments:

07:52-08:05 Intelligent generating method and application of heating furnace target billet heating curve

Xiang Xu, Zhengjun Yu, Jian He, Xuebo Chen

Show (Yes/No): Comments:

08:05-08:18 Modeling and Analysis of Water Injection Cooling Molding System

Jianhao Song, Feng Gao, Qiuhan Huang, Zhiyue Liu, Longjie Zhang, Yong Chen

Show (Yes/No): Comments:

Room H

Thursday, 14 October 2021

07:00 - 08:20

T122 - TT Signal and Image Processing and Computational Intelligence

Chairs: Xianqiang Yang, Wang Zhenwei

07:00-07:13 Three-dimensional Reconstruction of Complex Spatial Surface Based on Line Structured Light

Hongsheng Shi, Zhenwei Wang, Hong Chen

Show (Yes/No): Comments:

07:13-07:26 Aurora Image Classification Robust to Noise Labels

Takeru Endo, Mitsuharu Matsumoto

Show (Yes/No): Comments:

07:26-07:39 A Visual Odometry for Wide Angle Fovea Sensor SLAM

Tomoki Takamura, Sota Shimizu, Rei Murakami, Alessandro Carfi, Fulvio Mastrogiovanni

Show (Yes/No): Comments:

07:39-07:52 Application of Walsh Filter in Geophysical Well-Log Data Interpretation for Automated Lithological Bed Boundary Detection

Gagandeep Singh, Deepan Datta, William K. Mohanty, Aurobinda Routray, Rahul Mahadik

Show (Yes/No): Comments:

07:52-08:05 Study of brain activity for total sleep deprivation.

Teja Mannepalli, Nandini Rajaram, Priyadarshini Mishra, Aurobinda Routray

Show (Yes/No): Comments:

08:05-08:18 Reduction in the ill-posedness of the EEG source localization problem

Teja Mannepalli, Aurobinda Routray

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room I

Thursday, 14 October 2021

07:00 - 08:20

T092 - TT Power Electronics & Energy Conversion

Chairs: Dapeng Tian, Guo Xu

07:00-07:13 Inductor Switched Series Loaded Resonant Converter For Led Applications

Sree Vidhya Vaidyanadhan, Guru Sumanth G, Sankar Peddapati, Svk Naresh

Show (Yes/No): Comments:

07:13-07:26 A Novel Current Limiting Control Strategy for Three-Phase Three-Wire Inverter with Transformer

Xuecheng Liang, Li Peng

Show (Yes/No): Comments:

07:26-07:39 Hybrid Switched Inductor Step-Up Ultra-Sparse Matrix Converter for Wind Generator Applications

Maraka Israyelu, Sashidhar Sampathirao

Show (Yes/No): Comments:

07:39-07:52 An Improved Extended Phase Shift Modulation for DAB Converter with the Blocking Capacitor

Jian Tang, Guo Xu, Liting Li, Jingtao Xu, Mei Su

Show (Yes/No): Comments:

07:52-08:05 An Efficiency Optimization Control Method With Fast Dynamic Response For Multi-Phase Interleaved Synchronous Rectifier BUCK Converter

Peng Zhang, Yang Liu, Jin Zhao, Hanshu Zhang, Qiaoqiang Lv

Show (Yes/No): Comments:

08:05-08:18 Modified Switched-Inductor Based DC-DC Buck-Boost Converter for Low-Power Applications

Hamood-Ur- Rehman

Show (Yes/No): Comments:

Room J

Thursday, 14 October 2021

07:00 - 08:20

T102 - TT Power Systems and the Smart Grid

Chairs: Fangzhou Liu, Salvy Bourguet

07:00-07:13 A Grey Wolf Algorithm Optimized SVM Method for Voltage Sag Identification in Distribution Systems

Mo Wenxiong

Show (Yes/No): Comments:

07:13-07:26 A Local Density Clustering Based Method for Disturbance Source Identification of Power quality in Distribution Systems

Wang Yong

Show (Yes/No): Comments:

07:26-07:39 Location Method for Three Phase Unbalance Sources in Distribution Network Based on CSO Optimized Deep Belief Network

Luan Le

Show (Yes/No): Comments:

07:39-07:52 A PSO Optimized Support Vector Machine Method for User Identification of Distribution System with Electric Vehicles

Xu Zhong

Show (Yes/No): Comments:

07:52-08:05 Energy management of microgrids: from a mixed-integer linear programming problem to a rule-based real-time algorithm

Anthony Roy, Francois Auger, Jean-Christophe Olivier, Bruno Auvity, Emmanuel Schaeffer, Salvy Bourguet

Show (Yes/No): Comments:

08:05-08:18 Interface Compensation for More Accurate Power Transfer and Signal Synchronization within Power Hardware-in-the-Loop Simulation

Zhiwang Feng, Rafael Peña-Alzola, Paschalis Seisopoulos, Mazheruddin Syed, Efren Guillo-Sansano, Patrick Norman, Graeme Burt

Show (Yes/No): Comments:

Room K

Thursday, 14 October 2021

07:00 - 08:20

S031 - SS Advanced Electrical Machines and Drives for Transportation Electrification

Chairs: Qingsong Wang, Xing Zhao

07:00-07:13 Initial Rotor Position Estimation of Brushless Synchronous Starter/Generators Based on the Excitation System

Shuai Mao, Xu Han, Jianqiu Li, Qian Zhang, Zunyan Hu, Liangfei Xu

Show (Yes/No): Comments:

07:13-07:26 Passive Variable Field PM Motor Utilizing Space Harmonics

Takumi Kumai, Masahiro Aoyama

Show (Yes/No): Comments:

07:26-07:39 Design and Analysis of a Ferrite-PM-Assisted Hybrid Reluctance Machine for Electric Vehicle Propulsion

Weiyu Wang, Xing Zhao, Sigao Wang, Shuangxia Niu, Qingsong Wang

Show (Yes/No): Comments:

07:39-07:52 Analysis of Torque Performance of Motor With Continuous Flat Wire

Jinpeng Song, Jianqiu Li, Zunyan Hu, Liangfei Xu, Jiayi Hu, Minggao Ouyang

Show (Yes/No): Comments:

07:52-08:05 Analysis of Vernier Machine with Stator-V-Shaped Permanent-Magnet Arrangement

Fawen Shen, Yuming Yan, Shanmukha Ramakrishna, Chandana Jayampathi Gajanayake, Shuai Wang, Christopher H. T. Lee

Show (Yes/No): Comments:

08:05-08:18 High resolution initial rotor position estimation of SRM using peak current detection

Samant Kumar Singh, Ashwani Kumar Rana, A. V. Ravi Teja

Show (Yes/No): Comments:

Room L

Thursday, 14 October 2021

07:00 - 08:20

S242 - SS DCDC Converters Circuits, Modeling, Control and Applications

Chairs: Mahajan Sagar Bhaskar, Frede Blaabjerg

07:00-07:13 Numerous Patterns of Inductor Currents in DCM of Coupled SIDO Boost Converter

Nupur Nupur, Shabari Nath

Show (Yes/No): Comments:

07:13-07:26 A 10MHz Forward-Flyback Resonant DC/DC Converter

Lei Huang, Ling Gu

Show (Yes/No): Comments:

07:26-07:39 Three-Port Magnetically Coupled Resonant Wireless Energy Router with Dual Sources and Dual Loads and Its Power Management Strategy

Chaoyang Yan, Fuxin Liu, Haojie Shen, Xuling Chen

Show (Yes/No): Comments:

07:39-07:52 Adaptive Continuous Sliding Mode Control of Buck Converters Based on Zero-Crossing Checking

Yanmin Wang, Weiqi Zhang, Zekun Zhang, Haoran Cai

Show (Yes/No): Comments:

07:52-08:05 An Isolated High Step-Up Three Switch Quasi-Z-Source DC-DC Converter

Kang Liu, Xiaoquan Zhu, Kaiwen Ye, Liming Jiang

Show (Yes/No): Comments:

08:05-08:18 A Synchronous Rectification Method of Bidirectional CLLC Resonant Converter Based on Phase and Duty Cycle Regulation

Xiaobo Liu, Xiaohua Wu, Xiangke Li, Xinyue Zhang, Fei Deng, Shixian Sun

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room M

Thursday, 14 October 2021

07:00 - 08:20

S171 - SS Advances of Modular Power Electronics Converters for Transportation Applications

Chairs: Chunyang Gu, Giovanni De Carne

07:00-07:13 Comparative Study of Current Control Techniques for Fault-tolerant Five-phase PMSM

Huanran Wang, Giampaolo Buticchi, Chunyang Gu, Shun Bai, Michael Galea

Show (Yes/No): Comments:

07:13-07:26 Active Rectifier Control for Selective Fuse Tripping in a DC Microgrid

Jiajun Yang, Giampaolo Buticchi, Chunyang Gu, Pat Wheeler, Sebastian Brueske

Show (Yes/No): Comments:

07:26-07:39 An Advanced Extended Phase Shift Modulation Strategy of Dual Active Bridge Converter Considering Magnetizing Inductance

Yicong Cai, Chunyang Gu, Jiajun Yang, Jing Li, Giampaolo Buticchi, He Zhang

Show (Yes/No): Comments:

07:39-07:52 Comparison of Traction Substation Topologies for AC 25kV Electrical Railway

Milos Straka, Vojtech Blahnik, Martin Pittermann

Show (Yes/No): Comments:

07:52-08:05 A High-Frequency Pulsating DC-Link for Electric Vehicle Drives with Reduced Losses

Zhongxi Li, Aobo Yang, Gerry Chen, Zhiyong Zeng, Angel Peterchev, Stefan Goetz

Show (Yes/No): Comments:

08:05-08:18 Feed-forward decoupling control to enhance robust stability of PV inverter connected to a weak grid.

Antoine Musengimana, Zheng Xuemei, Li Haoyu

Show (Yes/No): Comments:

Room N

Thursday, 14 October 2021

07:00 - 08:20

S341 - SS Fuel Cell System Application in Transportation Electrification

Chairs: Rui Ma, Liangfei Xu

07:00-07:13 A Novel Bidirectional DC Solid State Power Controller for Fuel-Cell-Powered UAVs

Yuqing Fei, Shuai Ding, Yao Li, Xinyi Li, Zhongzheng Zhou, Bowen Zhang, Weilin Li

Show (Yes/No): Comments:

07:13-07:26 Design of Multi-objective Optimization Energy Management Strategy Based on Genetic Algorithm for a Hybrid Energy System

Yigeng Huangfu, Chongyang Tian, Peng Li, Sheng Quan, Yonghui Zhang, Rui Ma

Show (Yes/No): Comments:

07:26-07:39 Energy Management Strategy of Distributed Electric Propulsion Aircraft Hybrid Power System based on State Machine

Rui Ma, Minghao Yuan, Yang Zhou, Yufan Zhang, Fuwang Yang

Show (Yes/No): Comments:

07:39-07:52 A Design of Air System Control Algorithm for Full Power Fuel Cell Vehicles

Hui Tao, Jianhui Zhang, Liangfei Xu, Zunyan Hu, Jianqiu Li, Minggao Ouyang

Show (Yes/No): Comments:

07:52-08:05 Research on Multi-Objective Optimized Energy Management Strategy for Fuel Cell Hybrid Vehicle Based on Work Condition Recognition

Yigeng Huangfu, Zelong Zhang, Liangcai Xu, Wenzhuo Shi, Shengrong Zhuo

Show (Yes/No): Comments:

08:05-08:18 Lookup Table-based Electro-Thermal Real-Time Simulation of Output Series Interleaved Boost Converter for Fuel Cell Applications

Qian Li, Hao Bai, Elena Breaz, Robin Roche, Fei Gao

Show (Yes/No): Comments:

Room O

Thursday, 14 October 2021

07:00 - 08:20

S132 - SS Advances in HumanMechatronic Systems

Chairs: Sho Yokota, Mihoko Niitsuma

07:00-07:13 Autonomous Mobile Robot Navigation by Reinforcement Learning Considering Pedestrian Movement Tendencies

Kanako Amano, Haruka Isshiki, Yuka Kato

Show (Yes/No): Comments:

07:13-07:26 Effective Voltage Control of Liquid Crystal Lens for Rapid Focal Length Change

Tsugumi Fukui, Sota Shimizu, Keigo Muryobayashi, Marenori Kawamura, Susumu Sato, Nobuyuki Hasebe

Show (Yes/No): Comments:

07:26-07:39 A Portable Interactive Projection Device to Provide Visual Support for Children with Special Needs

Bruno Leme, Mika Oki, Kenji Suzuki

Show (Yes/No): Comments:

07:39-07:52 Stiffness Estimation from Vision and Touch Using Object Detection and Probabilistic Model: An Application to Object Identification

Masahiro Kamigaki, Seiichiro Katsura

Show (Yes/No): Comments:

07:52-08:05 Control Barrier Function Based Assist Control with Shifting Sensor and Footprint Positions

Shunsuke Kimura, Naito Kakuya

Show (Yes/No): Comments:

08:05-08:18 Study on forestry control system to improve forestry workers safety

Yuki Ayuta, Kouhei Okuda, Eisuke Kawamoto, Satoshi Muramatsu, Katsuhiko Inagaki, Daisuke Chugo, Syo Yokota, Hiroshi Hashimoto

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room P

Thursday, 14 October 2021

07:00 - 08:20

S551 - SS NetworkBased Cooperative Intelligence of Heterogeneous Microgrid Clusters

Chairs: Jingang Lai, Xiaoqing Lu

07:00-07:13 VSG Control Strategy Based on Model Predictive for Islanded Microgrid Inverter

Xuemei Zheng, Xu Shi, Haoyu Li, Yong Feng

Show (Yes/No): Comments:

07:13-07:26 Full-order Terminal Sliding mode Control for Virtual Synchronous Generator based Inverter

Minghao Zhou, Xingguo Wu, Hongyu Su, Wei Xu, Long Xu, Ying Chi

Show (Yes/No): Comments:

07:26-07:39 Cascaded 3-Phase-Bridge Converter Based on Virtual Synchronous Generator Control

Yang Yu, William Cai, Hanying Gao, Qingbo Guo, Minghao Zhou, Shiqiang Hou

Show (Yes/No): Comments:

07:39-07:52 A novel swarm intelligence optimization based predictive control of PV systems for complex conditions

Yingxue Chen, Linfeng Gou, Chujia Sun

Show (Yes/No): Comments:

07:52-08:05 Distributed Economical Dispatch Control for an AC Microgrid-Like Electric Vehicle Park

Chang Yu

Show (Yes/No): Comments:

08:05-08:18 A Robust Deadzone Compensation Method Against Parameter Variations based on Kalman Filter and Neural Networks

Le Pei, Liyi Li, Jiayi Liu, Zhenxing Cheng, Qingbo Guo, Hongchen Liu

Show (Yes/No): Comments:

Room Q

Thursday, 14 October 2021

07:00 - 08:20

S211 - SS Computational intelligence for power system networks and smart grid

Chairs: Vasundhara Mahajan, Narayana Prasad Padhy

07:00-07:13 **Rule extraction from electricity load profile data for smart metering analytics**

Geordie Dalzell, Xinghuo Yu, Peter Sokolowski

Show (Yes/No): Comments:

07:13-07:26 **A New Novel Approach for Optimal Capacitor Placement in Radial Distribution Networks using Data Envelopment Analysis**

Shubham Gupta, Vinod Kumar Yadav, Madhusudan Singh

Show (Yes/No): Comments:

07:26-07:39 **Oscillation Mode Assessment in Power System Using Multivariate Variational Mode Decomposition**

Rahul S, Sunitha R, Akhil V M

Show (Yes/No): Comments:

07:39-07:52 **A PMP Energy Management Strategy based on State Switching for a Fuel Cell UAV**

Rui Ma, Jian Song, Hongyu Zhang, Bowen Zhang, Yuang Wang, Bo Liang

Show (Yes/No): Comments:

07:52-08:05 **An Energy Management Strategy of More-Electric Aircraft Based on Fuzzy Neural Network Trained by Dynamic Programming**

Yigeng Huangfu, Wenzhuo Shi, Liangcai Xu, Zelong Zhang, Zijun Ren, Shengrong Zhuo

Show (Yes/No): Comments:

08:05-08:18 **Energy Management Strategy for All-electric Propulsion UAV based on Fuel Cell Power System**

Malo Cresson, Rui Ma, Liangcai Xu

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room R

Thursday, 14 October 2021

07:00 - 08:20

S141 - SS Advances in Protection System DC and AC Power Network

Chairs: Satarupa Bal, Xiaoqing Song

07:00-07:13 Smart Energy Management for Prosumers in Local Energy Communities

Weng Kean Yew, David Flynn

Show (Yes/No): Comments:

07:13-07:26 High Gain Multilevel Inverter Based Grid Integrated Solar Power Transfer System with Power Quality Enhancement

Renuka Varma, Nirmal Mukundan C M, Jayaprakash P, Ahmed Al Durra, Tarek El-Fouly

Show (Yes/No): Comments:

07:26-07:39 Fault Location on Three-Terminal Transmission Lines Based on a Meta-Heuristic Algorithm

Duy Chau Huynh, Thanh Huu Truong, Matthew Walter Dunnigan

Show (Yes/No): Comments:

07:39-07:52 Evaluation of 6-terminal 36-slot Induction motor Drive with 1:2 Speed Ratio using PPM

Sheetal Umredkar, Ritesh Kumar Keshri, Vijay B Borghate, Mohan M Renge

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Plenary & Keynote

Thursday, 14 October 2021

08:30 - 09:00

IECON2021 Keynote 3: Babak Fahimi

Towards a Reliable, Sustainable, and Eco-friendly Electric Propulsion System

Dr. Babak Fahimi

University of Texas at Dallas, Distinguished Chair of Engineering

Chairs: Kamal Al-Haddad, Xinghuo Yu

47th Annual Conference of the IEEE Industrial Electronics Society

Plenary & Keynote

Thursday, 14 October 2021

09:00 - 09:30

IECON 2021 Keynote 4: Ivano Labricciosa

The Industrial Digital Nexus – Our Greatest Engineering Opportunity

Ivano Labricciosa

President & CEO Oshawa Power And Utilities Corporation

Chairs: Kamal Al-Haddad, Xinghuo Yu

Room A

Thursday, 14 October 2021

10:00 - 11:20

T047 - TT Electrical Machines and Drives

Chairs: Giampaolo Buticchi, Giovanni Migliazza

10:00-10:13 Studying the Algorithm of Optimal Correction of Control Structure Parameters for Generator Excitation Control

Fedor Mitin

Show (Yes/No): Comments:

10:13-10:26 Deterministic winding function model for slotted induction machines validated by air gap magnetic field measurements

Matthias Stiller, Ingo Hahn

Show (Yes/No): Comments:

10:26-10:39 Two-level Topology Optimization based on a Metaheuristic Method and Morphological Reconstruction

Shabnam Ruzbehi, Ingo Hahn

Show (Yes/No): Comments:

10:39-10:52 Topology Optimization of Electrical Machines for NVH Purposes in E-mobility Applications - Part 1

Johan Cederlund, Shafiqh Nategh, David Lennström

Show (Yes/No): Comments:

10:52-11:05 Modelling the Influence of the Mechanical Forces on the Commutation Process of a DC Motor

Johannes Wagner, Ingo Hahn

Show (Yes/No): Comments:

11:05-11:18 Online Incremental Inductance Identification for Reluctance Synchronous Motors

Matteo Berto, Luigi Alberti, Floran Martin, Marko Hinkkanen

Show (Yes/No): Comments:

Room B

Thursday, 14 October 2021

10:00 - 11:20

T0411 - TT Electrical Machines and Drives

Chairs: Atif Iqbal, Alessandro Serpi

10:00-10:13 **Influence of the Magnetic Load on High Speed Synchronous Reluctance Machines Design**

Gianvito Gallicchio, Mauro Di Nardo, Marco Palmieri, Michele Degano, Chris Gerada, Francesco Cupertino

Show (Yes/No): Comments:

10:13-10:26 **Performance Improvement of Fault-Tolerant Control for Dual Three-Phase PMSM Drives Under Inter-Turn Short Circuit Faults**

Hüseyin Tayyer Canseven, Abdurrahman ÜNsal

Show (Yes/No): Comments:

10:26-10:39 **Combined Electrical-Thermal Gray-Box Model and Parameter Identification of an Induction Motor**

Marius Stender, Oliver Wallscheid, Joachim Böcker

Show (Yes/No): Comments:

10:39-10:52 **Magnetic Equivalent Circuit Modeling of a Single-phase Brushless Exciter for Aircraft Starter/Generator**

Lihong Xie, Xibo Yuan, Giovanni Raimondi, Mark Worthington

Show (Yes/No): Comments:

10:52-11:05 **A Comparison of Sensorless MTPA and Quasi-MPF Control for VSD-PMaSynRM**

Alper Tap, Kadir Akgul, Ali Fuat Ergenc, Murat Yilmaz, Lale T. Ergene

Show (Yes/No): Comments:

11:05-11:18 **Impact of Airgap on the Performance of 3-Phase Permanent Magnet Hybrid Stepper Motor**

Murat Onsal, Yucel Demir, Metin Aydin, Mustafa Kamil Guven

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room C

Thursday, 14 October 2021

10:00 - 11:20

S&YP-WiE - Round table

Mentors - Industry Link Round Table title: "Energy, Information and Industrial revolution"

Invited Keynote Panelists: Seta Bogosyan, Lucia Lo-Bello, Morgan Kiani, Jose Rodriguez, Regina Roos, Reinaldo Tonkoski, starting with short presentations of panelists 10 minutes each then discussion.

Chairs: Andrii Chub, Hong Li, Marek Jasinski

Closing remarks by IEEE IES Vice President for Membership

Prof. Yousef Ibrahim, Federation University Australia, IEEE IES VP Membership.

47th Annual Conference of the IEEE Industrial Electronics Society

Room D

Thursday, 14 October 2021

10:00 - 11:20

IF2 - Industrial Automotive Applications

Talk 1: The Future of Mobility in India (10:00 – 10:25 am)

Dr. Tapan Sahoo, Executive Director (Maruti Suzuki India Ltd, India)

Talk 2: Fuel Cell vehicles Testing Standards: Current Status in China and perspectives (10:25 – 10:50 am)

Mr. Yupeng Wang, Chief Engineer (China First Auto Works (FAW), China)

Talk 3: 5G and MEC: Impact and Challenges in Mobility (10:50 – 11:15 am)

Mr. Naoki Shimizu, General Manager, Technology Development (Mitsubishi Electric Automotive America, Silicon Valley Office, USA)

Chairs: Dr. Victor Huang,

47th Annual Conference of the IEEE Industrial Electronics Society

Room E

Thursday, 14 October 2021

10:00 - 11:20

T027 - TT Control System, Robotics and Automation

Chairs: Hao Luo, Zhiwen Chen

10:00-10:13 **A DMP-based online adaptive stiffness adjustment method**

Jiale Dong, Weiyong Si, Chenguang Yang

Show (Yes/No): Comments:

10:13-10:26 **On Improving TLS Identification Results Using Nuisance Variables with Application on PMSM**

Dominik Friml, Michal Kozubik, Pavel Vaclavek

Show (Yes/No): Comments:

10:26-10:39 **Trajectory sequence generation and static obstacle avoidance for automatic positioning tasks with a tower crane**

Matthias Thomas, Jiacheng Qiu, Oliver Sawodny

Show (Yes/No): Comments:

10:39-10:52 **Semi-Automatic Video Frame Annotation for Construction Equipment Automation Using Scale-Models**

Carl Borngrund, Tom Hammarkvist, Ulf Bodin, Fredrik Sandin

Show (Yes/No): Comments:

10:52-11:05 **Virtual Leader based Trajectory Generation of UAV Formation for Visual Area Coverage**

Hilton Thunay, Kaouther Moussa, Ahmad Hably, Nicolas Marchand

Show (Yes/No): Comments:

11:05-11:18 **Trajectory Planning for Concrete Element Fabrication with Optimal Control**

Boris Blagojevic, Benjamin Schönemann, David Nigl, Lucio Blandini, Oliver Sawodny

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room F

Thursday, 14 October 2021

10:00 - 11:20

T031 - TT Electric Energy Storage Systems

Chairs: Varsha A. Shah, Sachin Jain

10:00-10:13 SOC, Temperature and Dual-Objective Balancing in Reconfigurable Batteries for Electric Vehicles

Jan Kleiner, Lorenz Lechermann, Lidiya Komsiyiska, Christian Endisch, Michael Hinterberger

Show (Yes/No): Comments:

10:13-10:26 A Sensitivity Analysis on Power to Energy Ratios for Energy Storage Systems providing both Dynamic Firm and Dynamic Containment Frequency Response Services in the UK

Abdulkarim A Ahmouda, Daniel T Gladwin

Show (Yes/No): Comments:

10:26-10:39 Data-selection for state estimation of large-scale battery systems

Zhuo Wang, Daniel T. Gladwin, Matthew J. Smith, Thomas L. Fantham

Show (Yes/No): Comments:

10:39-10:52 Multidimensional Machine Learning Balancing in Smart Battery Packs

Roberta Di Fonso, Xin Sui, Anirudh B. Acharya, Remus Teodorescu, Carlo Cecati

Show (Yes/No): Comments:

10:52-11:05 A Review of Lithium-ion Batteries Diagnostics and Prognostics Challenges

Syedreza Azizighalehsari, Jelena Popovic, Prasanth Venugopal, Braham Ferreira

Show (Yes/No): Comments:

11:05-11:18 Hybrid Battery-SC and Battery-Battery Multistage Design and Energy Management for Power Sharing

Khadim Ullah Jan, Anne Migan Dubois, Demba Diallo

Show (Yes/No): Comments:

Room G

Thursday, 14 October 2021

10:00 - 11:20

T064 - TT Industrial Automation, Communication, Networking and Informatics

Chairs: Reinder J. Bril, Teemu Mätäsniemi

10:00-10:13 A Method to Automatically Generate Semantic Skill Models from PLC Code

Aljosha Köcher, Tom Jeleniewski, Alexander Fay

Show (Yes/No): Comments:

10:13-10:26 A Digital Twin for Analysis of Radiation Heating in Thermoforming Processes

Enrico Spateri, Fredy Ruiz, Giambattista Gruosso

Show (Yes/No): Comments:

10:26-10:39 Benchmarking The Operation Times Of Nosql And Mysql Databases For Python Clients

Mike Reichardt, Michael Gundall, Hans Dieter Schotten

Show (Yes/No): Comments:

10:39-10:52 Robust detection of persons in emergency situations in public buildings

Jan Haase

Show (Yes/No): Comments:

10:52-11:05 A Control Injection Attack against S7 PLCs - Manipulating the Decompiled Code

Wael Alsabbagh, Peter Langendörfer

Show (Yes/No): Comments:

11:05-11:18 Speed Limits for Single-Beam Laser Marking

David Castells-Rufas, Francesc Bravo-Montero, Jordi Carrabina

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room H

Thursday, 14 October 2021

10:00 - 11:20

S071 - SS Advanced Technology for Electric Vehicle Charging Systems and its Management

Chairs: C. Bharatiraja, Sheldon Williamson

10:00-10:13 Technological Overview of Onboard Chargers for Electrified Automotive Transportation

Harish Karneddi, Deepak Ronanki, Ricardo Lizana Fuentes

Show (Yes/No): Comments:

10:13-10:26 Power Management of a Smart Vehicle-to-Grid (V2G) System Using Fuzzy Logic Approach

Majid Mehrasa, Reza Razi, Khaled Hajar, Antoine Labonne, Ahmad Hably, Seddik Bacha

Show (Yes/No): Comments:

10:26-10:39 Limiting discharge cycles numbers for plug-in electric vehicles in bidirectional smart charging algorithm

Reza Razi, Khaled Hajar, Majid Mehrasa, Antoine Labbone, Ahmad Hably, Seddik Bacha

Show (Yes/No): Comments:

10:39-10:52 A Survey on Charging Station Architectures for Electric Transportation

Raghda Hariri, Fadia Sebaaly, Charles Ibrahim, Sheldon Williamson, Hadi Y. Kanaan

Show (Yes/No): Comments:

10:52-11:05 Multibattery charger system based on a three-level dual-active-bridge power converter

Jose M. Campos-Salazar, Sergio Busquets-Monge, Alber Filba-Martinez, Salvador Alepuz

Show (Yes/No): Comments:

11:05-11:18 Optimal Sizing of Electric Vehicle Charging Stations in Residential Parking

Abdelhak Borhani, Hamid Ouadi, Mohamed Najoui

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room I

Thursday, 14 October 2021

10:00 - 11:20

T096 - TT Power Electronics & Energy Conversion

Chairs: Josep Pou, Gonzalo Abad

10:00-10:13 A Modified SHMPWM Algorithm based on the 3L-NPC Inverter Connected with the 10kV Grid

Tao Jing, Alexander Maklakov, Andrey Radionov, Vadim Gasiyarovv

Show (Yes/No): Comments:

10:13-10:26 Neural Network Modeling of Nonlinear Filters for EMC Simulation in Discrete Time Domain

Jan-Philipp Roche, Jens Friebe, Oliver Niggemann

Show (Yes/No): Comments:

10:26-10:39 An Isolated Variable-Resistance Active Gate Driver for Use in SiC-Driven Inverters

Julius Wiesemann, Axel Mertens

Show (Yes/No): Comments:

10:39-10:52 Development of a SPICE modelling strategy for power devices in GaN technology

Enrico Bottaro, Mario Cacciato, Alessandra Raffa, Santi Agatino Rizzo, Nunzio Salerno, Pier Paolo Veneziano

Show (Yes/No): Comments:

10:52-11:05 Benefits of Finer Semiconductor Device Granularity on Power Converter Thermal Stress and MTTF

Roya Rafiezadeh, Sergio Busquets-Monge, Salvador Alepuz

Show (Yes/No): Comments:

11:05-11:18 Impact of Temperature and Switching Rate on Properties of Crosstalk on Symmetrical & Asymmetrical Double-trench SiC Power MOSFET

Juefei Yang, Saeed Jahdi, Bernard Stark, Ruizhu Wu, Olayiwola Alatise, Jose Ortiz Gonzalez

Show (Yes/No): Comments:

Room J

Thursday, 14 October 2021

10:00 - 11:20

T104 - TT Power Systems and the Smart Grid

Chairs: Enrique Romero-Cadaval, Mo-Yuen Chow

10:00-10:13 Elasticity & Dynamic Assessment of Objectives Weights with Multiple Demand Response Programs

Charles Ibrahim, Imad Mougharbel, Hadi Y. Kanaan

Show (Yes/No): Comments:

10:13-10:26 A Hardware-in-the-Loop Co-simulation of Multi-modal Energy System for Control Validation

Diran Liu, Dominik Hering, Daniele Carta, Andre Xhonneux, Dirk Müller, Andrea Benigni

Show (Yes/No): Comments:

10:26-10:39 Research needs for harmonic stability analysis of power electronic devices in low voltage networks

Elias Kaufhold, Jan Meyer, Peter Schegner

Show (Yes/No): Comments:

10:39-10:52 A Novel Multilevel Interleaved-Based PFC Rectifier with Modular DC Interfaces

Vitor Monteiro, Joao Afonso

Show (Yes/No): Comments:

10:52-11:05 Interfacing Power Electronics Systems for Smart Grids: Innovative Perspectives of Unified Systems and Operation Modes

Vitor Monteiro, Tiago Soares, Joao P. Lopes, Manuel Matos, Joao Afonso

Show (Yes/No): Comments:

11:05-11:18 Continuous Control Set Model Predictive Control of a Bridgeless-Boost Three-Level Active Rectifier

Vitor Monteiro, Jose Afonso, Ana Rodrigues, Tiago Sousa, Joao Afonso

Show (Yes/No): Comments:

Room K

Thursday, 14 October 2021

10:00 - 11:20

S501 - SS Modern Power Converters and Control for Renewable Energy Systems and SmartMicro Grids

Chairs: Pandav Kiran Maroti, Sanjeevikumar Padmanaban

10:00-10:13 **A High-Step up and Low-Spikes Inverter based on Two T-type Coupled Inductors**

Qing Cheng, Wei Wang, Yueshi Guan, Tingting Yao, Dianguo Xu

Show (Yes/No): Comments:

10:13-10:26 **A Comparison of Fixed-Parameter Active-Power-Oscillation Damping Solutions for Virtual Synchronous Generators**

Yun Yu, Gibran David Agundis Tinajero, Sanjay K Chaudhary, Luona Xu, Nur Najihah Binti Abu Bakar, Josep M. Guerrero, Juan C. Vasquez

Show (Yes/No): Comments:

10:26-10:39 **Islanding Classification With Optimized k-Nearest Neighbors for Three-Phase Grid Connected Photovoltaic System**

Faizah Fayaz, Ahteshamul Haque, K. V. Satya Bharath, Sanjeevikumar Padmanaban

Show (Yes/No): Comments:

10:39-10:52 **DC microgrid voltage stability by Model Free Super-Twisting Sliding Mode Control**

Sarah Kassir, Moustapha Doumiati, Mohamed Machmoum, Clovis Francis, Maher El Rafei

Show (Yes/No): Comments:

10:52-11:05 **A Lumped, Resonant Switched Capacitor Converter**

Nakul Narayanan K., Andrew Cross, Hassan Taghizadeh, L. Umanand

Show (Yes/No): Comments:

11:05-11:18 **Doubly Fed Induction Generator with Multi-Vector Model Predictive Power Control**

Mohammad Ebrahim Zarei, Milan Prodanovic, Dionisio Ramirez

Show (Yes/No): Comments:

Room L

Thursday, 14 October 2021

10:00 - 11:20

S411 - SS Improving Battery Management Systems through Signal Processing, Machine Learning, Data Fusion, and Control Algorithms

Chairs: Balakumar BALASINGAM, Krishna R. PATTIPATI

10:00-10:13 Lithium-ion Battery State of Health Estimation based on Cycle Synchronization using Dynamic Time Warping

Kate Qi Zhou, Yan Qin, Billy Pik Lik Lau, Chau Yuen, Stefan Adams

Show (Yes/No): Comments:

10:13-10:26 Battery Thermal Model Identification And Surface Temperature Prediction

Pradeep Kumar, Balakumar Balasingam, Gary Rankin, Krishna R. Pattipati

Show (Yes/No): Comments:

10:26-10:39 Comparative Study and Development of Optimized Energy Efficient Battery Thermal Management System for Electric Vehicles in India

Pradeep Kumar, Yasser Rafat, Peeyush Varshney, Deepak Chaudhary, Mohammad Saad Alam, Balakumar Balasingam

Show (Yes/No): Comments:

10:39-10:52 Underwater Environmental Impact and Thermal Management of Unmanned Underwater Vehicle Li-Ion Batteries

Tomas Salazar, Sean Youngblood, Sung-Yeul Park

Show (Yes/No): Comments:

10:52-11:05 Model Predictive Control of HVAC System in a Battery Electric Vehicle with Fan Power Adaptation for Improved Efficiency and Online Estimation of Ambient Temperature

Maryam Alizadeh, Sumedh Dhale, Ali Emadi

Show (Yes/No): Comments:

11:05-11:18 Battery Cell Dynamic Modeling Using the RC Equivalent Circuit for RTDS Frameworks

Morteza Rezaei Larijani, MohammadReza Zolghadri, Shahin Hedayati Kia, Ahmed El Hajjaji

Show (Yes/No): Comments:

Room M

Thursday, 14 October 2021

10:00 - 11:20

S451 - SS Low Power Smart Sensors for Industrial Applications Hardware and Software Design

Chairs: Reza Abrishambaf, António Espírito-Santo

10:00-10:13 **ESD wrist strap-based EDA sensor cum ESD strap integrity monitor**

Ashish Joglekar, Gaurav Bhandari, Rajesh Sundaresan

Show (Yes/No): Comments:

10:13-10:26 **Vehicle Route Prediction System in the context of Motion Sickness Mitigation**

Tiago Aston, Rui Gomes, Paulo Cardoso

Show (Yes/No): Comments:

10:26-10:39 **On the Power Consumption of a Bluetooth Device Operating in Beacon Mode**

Luigi Ferrigno, Filippo Milano, Antonio Espirito Santo, Jose Salvado, Marco Laracca, Vincenzo Paciello

Show (Yes/No): Comments:

10:39-10:52 **IEC 61499 and IEEE 1451 for Distributed Control and Measurement Systems**

Reza Abrishambaf, Helbert da Rocha, Antonio Espirito-Santo

Show (Yes/No): Comments:

10:52-11:05 **MARTe2 embedded signal processing unit for the ITER magnetics diagnostics**

Giuseppe Avon, Arturo Buscarino, André Neto, Filippo Sartori

Show (Yes/No): Comments:

11:05-11:18 **Security Certification of Cyber Physical Systems for Critical Infrastructure based on the Compositional MILS Architecture**

Andreas Hohenegger, Gerald Krummeck, Janie Baños, Alvaro Ortega, Michal Hager, Jiri Sterba, Tomas Kertis, Petr Novobilsky, Jan Prochazka, Benito Caracuel

Show (Yes/No): Comments:

Room N

Thursday, 14 October 2021

10:00 - 11:20

S471 - SS Modeling, Control and Design of Propulsion Drive for EVs

Chairs: Kundan Kumar, Rakesh Kumar

10:00-10:13 **Techno Economic Aspects of The Wireless Electric Vehicle Charging**

K Vidhya, C. Sharmeela, S. Balaji, S. Elango, P. Sanjeevikumar, M. S. Bhaskar

Show (Yes/No): Comments:

10:13-10:26 **Data Driven Fault Classification Technique for Grid Connected PV Inverter**

Azra Malik, Ahteshamul Haque, K. V. Satya Bharath, Sanjeevikumar Padmanaban

Show (Yes/No): Comments:

10:26-10:39 **Analysis of Solar PV Fed Dynamic Wireless Charging System for Electric Vehicles**

Kundan Kumar, Kantipudi V.V.S.R. Chowdary, Sanjeevikumar Padmanaban, Ramjee Prasad

Show (Yes/No): Comments:

10:39-10:52 **Reduced Switch Count Three-Phase Five-Level Boosted ANPC Inverter with Unipolar PWM Scheme for Electric Vehicle Propulsion Drive**

Swapan Kumar Baksi, Utkal Ranjan Muduli, Ranjan Kumar Behera, Khalifa Al Hosani, Khaled Al Jaafari, David Wenzhong Gao

Show (Yes/No): Comments:

10:52-11:05 **Average-Value Modeling of Multi-Phase Machine-Converter Systems with Asymmetric Internal Faults**

Seyyedmilad Ebrahimi, Navid Amiri, Juri Jatskevich

Show (Yes/No): Comments:

11:05-11:18 **Design Criteria for EV Drivetrain**

Tamanwè Payarou, Sumeet Singh, Mohanraj Muthusamy, Pragasen Pillay

Show (Yes/No): Comments:

Room O

Thursday, 14 October 2021

10:00 - 11:20

S331 - SS Energy and Health Management of DC Microgrids

Chairs: Zhixue Zheng, Zhongliang Li

10:00-10:13 **A comparative study for optimal sizing of a grid-connected hybrid system using Genetic Algorithm, Particle Swarm Optimization, and HOMER.**

Hoda Elaouni, Hussein Obeid, Stéphane Le Masson, Olivier Foucault, Hamid Gualous

Show (Yes/No): Comments:

10:13-10:26 **Three-Layer Hierarchical Model Predictive Control Concept for Industrial DC Microgrids**

Elias Knoechelmann, Alexander Maennel, Moritz Schappler

Show (Yes/No): Comments:

10:26-10:39 **Development of An Energy Management Strategy for Port Cranes**

Rofhiwa Takalani, Lesedi Masisi

Show (Yes/No): Comments:

10:39-10:52 **Reinforcement Learning based Energy Management for Fuel Cell Hybrid Electric Vehicles**

Liang Guo, Zhongliang Li, Rachid Outbib

Show (Yes/No): Comments:

10:52-11:05 **Design Guidelines for Energy Efficient AC to DC Power Supplies**

Michael Chrysostomou, Nicholas Christofides, Stelios Ioannou, Christos Marouchos

Show (Yes/No): Comments:

11:05-11:18 **Towards Sustainable Models of Computation for Artificial Intelligence in Cyber-Physical Systems**

Massimiliano Pirani, Aldo Franco Dragoni, Sauro Longhi

Show (Yes/No): Comments:

Room A

Thursday, 14 October 2021

11:30 - 12:50

T0414 - TT Electrical Machines and Drives

Chairs: Jose Antonino-Daviu, Shafiqh Nategh

11:30-11:43 Modeling and Design of a Tubular Linear Generator for Direct-Drive Free-Piston Engine

Christophe S. Cyusa, Tamanwè Payarou, Dwaipayan Barman, Tamas Bertenyi, Philip Raphals, Chunyan Lai, Pragasen Pillay

Show (Yes/No): Comments:

11:43-11:56 Performance of Mutually Coupled Switched Reluctance Machines in Generating Mode with Sinusoidal Current Excitation

Peter Azer, Aniket Anand, Ali Emadi

Show (Yes/No): Comments:

11:56-12:09 Automatic Flux Linkage and Inductance Measurement for a Variable Flux Machine at Different Magnetization States

Bigyan Basnet, Pragasen Pillay

Show (Yes/No): Comments:

12:09-12:22 In-Situ Magnetization of a Cold Sprayed Permanent Magnet Rotor Using an Impulse Magnetizer

Mathews Bobby, Sumeet Singh, Jean-Michel Lamarre, Maged Ibrahim, Fabrice Bernier, Pragasen Pillay

Show (Yes/No): Comments:

12:22-12:35 Dead Time Analysis of a Power-Hardware-in-the-Loop Emulator for Induction Machines

Seyedeh Nazanin Afrasiabi, Chunyan Lai, Pragasen Pillay

Show (Yes/No): Comments:

12:35-12:48 On The Design and Performance Improvement of Single-Phase Induction Motors for Residential, Commercial and Industrial Applications

Olusegun Solomon

Show (Yes/No): Comments:

Room B

Thursday, 14 October 2021

11:30 - 12:50

T0212 - TT Control System, Robotics and Automation

Chairs: Wanxin Jin, Ya-Jun Pan

11:30-11:43 Adaptive and Neural Network-based Control Methods Comparison using different Human Torque Synthesis for Upper-limb Robotic Exoskeleton

Georgeta Bauer, Ya-Jun Pan

Show (Yes/No): Comments:

11:43-11:56 A novel approach to extract the angular position estimation error for position and speed estimation of Interior Permanent Magnet Synchronous Machine

Carlos Enrique Alvaro Mendoza, Jesús De León Morales, Mohamed Assaad HAMIDA, Malek Ghanes

Show (Yes/No): Comments:

11:56-12:09 Distributed Formation Tracking Control with Edge-Triggered Communication Mechanism

Zipeng Huang, Robert Bauer, Ya-Jun Pan

Show (Yes/No): Comments:

12:09-12:22 Development of Agricultural Robot Platform with Virtual Laboratory Capabilities

German Monsalve, Oriane Thiery, Simon De Moreau, Alben Cardenas

Show (Yes/No): Comments:

12:22-12:35 Task Space Bilateral Teleoperation of Co-manipulators using Power-based TDPC and Leader-follower Admittance Control

Chen Cai, Ya-Jun Pan, Steven Liu, Lucas Wan

Show (Yes/No): Comments:

12:35-12:48 Terminal Sliding Mode Control for the Formation of a Team of Quadrotors and Mobile Robots

Ryan Adderson, Ya-Jun Pan

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room C

Thursday, 14 October 2021

11:30 - 12:50

WiE - Women in IES Session

15.30 - 15.40 UTC Welcome and Introduction to the Women in IES initiative
Prof. Lucia Lo Bello, University of Catania, Italy, IES representative for Women in Engineering
Prof. Yousef Ibrahim, Federation University Australia, IES VP for Membership

15.40-16.00 UTC: Invited Speech
Prof. Seta Bogosyan, Turkey/USA
Title: "Connected and Autonomous Transportation: Challenges and Need for International Networks"
Chair: Lucia Lo Bello

16.00-16.20 UTC: Invited Speech
Dr. Regina Roos, Typhoon-HIL GmbH, Switzerland
Title: "Diversity or Division of Work"
Chair: Morgan Kiani

16.20-16.40 UTC Invited Speech
Prof. Maria Ines Valla, Argentina
Title: "Women in Engineering within the National Research Council in Argentina"
Chair: Regina Roos

16.40-16.50 UTC: Wrap-up and Closing
Chairs: Lucia Lo Bello,

47th Annual Conference of the IEEE Industrial Electronics Society

Room D

Thursday, 14 October 2021

11:30 - 12:50

INTEROP2 - TEAM (Automotive)

Cloud Computing Simulation platform for e-mobility, Siemens

Real-Time Sim & HIL for grids & EVs, Typhoon HIL

Energy Management & EVs, NC State University (MY Chow)

AUTO 4 (TBD), TBD

OPEN DISCUSSIONS

Chairs: Fei Gao, Akshay Rathore

47th Annual Conference of the IEEE Industrial Electronics Society

Room E

Thursday, 14 October 2021

11:30 - 12:50

TUT01 - Future power conversion techniques for utility scale grid integration of renewables

Presenters

Dr. Kaushik Basu

Associate Professor

Indian Institute of Science, Bangalore

Dr. Anirban Pal

Post-Doctoral Fellow

University of Nottingham, UK

47th Annual Conference of the IEEE Industrial Electronics Society

Room F

Thursday, 14 October 2021

11:30 - 12:50

TUT02 - Fault-Tolerant and Cyber-Resilient Control of Renewable Microgrids

Presenters

Youmin Zhang

Professor

Concordia University, Montreal, Canada

Hamed Badihi

Associate Professor

Nanjing University of Aeronautics and Astronautics

Nanjing, Jiangsu, China

Saeedreza Jadidi

PhD Candidate

Concordia University, Montreal, Canada

47th Annual Conference of the IEEE Industrial Electronics Society

Room G

Thursday, 14 October 2021

11:30 - 12:50

TUT03 - Reliable and Stable Operation of DFIG Wind Power Converter

Presenters

Dao Zhou, Associate Professor, Aalborg University, Denmark

Chao Wu, Postdoc, Aalborg University, Denmark

Heng Nian, Professor, Zhejiang University, China

Yipeng Song, Control Engineer, Siemens Gamesa Renewable Energy, Denmark

47th Annual Conference of the IEEE Industrial Electronics Society

Room H

Thursday, 14 October 2021

11:30 - 12:50

TUT04 - Power Hardware-in-the-loop Machine Emulators – A game-changer in industrial systems development and testing

Presenters

Dr. R. Sudharshan Kaarthik,

Associate Professor, Indian Institute of Space Science and Technology, Thiruvananthapuram, India.

Dr. K. S. Amitkumat

Team-Lead, Power Testbed Applications,

OPAL-RT Technologies,

Montreal, Canada

Dr. Uday Deshpande,

CTO, D&V Electronics, USA

47th Annual Conference of the IEEE Industrial Electronics Society

Room I

Thursday, 14 October 2021

11:30 - 12:50

T0910 - TT Power Electronics & Energy Conversion

Chairs: Deepak Ronanki, Arvind Kadam

11:30-11:43 Linear Active Disturbance Rejection Control Design for Single-Phase UPS Inverters

Reza Rezaii, Reza Khalili, Issa Batarseh, Chinwendu Enyioha

Show (Yes/No): Comments:

11:43-11:56 A Data-Driven Based Online Learning Control of Voltage Source Converter for DC Microgrids

Ahmed Soliman, Mahmoud Amin, Fayez El-Sousy, Osama Mohammad

Show (Yes/No): Comments:

11:56-12:09 Modeling and Minimization of Switching Loss in Dual Active Bridge Converters

Negar Noroozi, Amirreza Poorfakhraei, Mehdi Narimani, Ali Emadi

Show (Yes/No): Comments:

12:09-12:22 Dimming DC-DC LED Drivers: Luminous Efficiency, Power Losses, & Best-in-Class

Vasu Gupta, Gabriel A. Rincon-Mora

Show (Yes/No): Comments:

12:22-12:35 Enhancing Multistep Finite Control Set Performance of 3L-NPC Converters using Optimal Pulse Patterns

Cristóbal González, Alejandro Angulo, Fernando Mancilla-David

Show (Yes/No): Comments:

12:35-12:48 General Approach to Synthesize Multi-Port Power Converters for Hybrid Energy Systems

Sina Vahid, Ayman EL-Refaie

Show (Yes/No): Comments:

Room J

Thursday, 14 October 2021

11:30 - 12:50

T106 - TT Power Systems and the Smart Grid

Chairs: Ambrish Chandra, Rawad Zgheib

11:30-11:43 **An energy management system for power exchange between multiple residential neighborhood microgrids**

Pedro J. Arciniega, Diego Arcos-Aviles, Mauricio Rodriguez, Wilmar Martinez

Show (Yes/No): Comments:

11:43-11:56 **A hybrid generation system modeling for residential use in isolated areas of Ecuador**

Jonathan Acosta, Mauricio Rodriguez, Carlos Alvarez, Diego Arcos-Aviles, Michelle Herrera, Paul Ayala, Jacqueline Llanos, Wilmar Martinez

Show (Yes/No): Comments:

11:56-12:09 **A Computational Model for Aging Dependability in Polymeric Cable Insulation**

Qasim Khan, Shady S. Refaat, Haitham Abu-Rub, Hamid A Toliyat

Show (Yes/No): Comments:

12:09-12:22 **RISP: Tunable Fault-Tolerance for Distributed Iterative Numerical Solvers for the Smart Grid**

Carlos J. Vélez-Rivera, Emmanuel Arzuaga-Cruz, Fabio Andrade, Agustín A. Irizarry-Rivera

Show (Yes/No): Comments:

12:22-12:35 **Online Estimation of Electromechanical Oscillations from Phasor Measurements**

Mohammad Jahvani, Martin Guay

Show (Yes/No): Comments:

12:35-12:48 **Distributed Economic Dispatch over Strongly Connected Communication Networks**

Mohammad Jahvani, Martin Guay

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room K

Thursday, 14 October 2021

11:30 - 12:50

S502 - SS Modern Power Converters and Control for Renewable Energy Systems and SmartMicro Grids

Chairs: Pandav Kiran Maroti, Rakesh Kumar

11:30-11:43 **Capacitor Voltage Balancing Control Scheme for 2/3-Level DAB Converters**

Chaochao Song, Ariya Sangwongwanich, Yongheng Yang, Frede Blaabjerg

Show (Yes/No): Comments:

11:43-11:56 **Distributed Predictive Control using Frequency and Voltage Soft Constraints in AC Microgrids including Economic Dispatch of Generation**

Alex Navas-Fonseca, Claudio Burgos-Mellado, Juan S. Gomez, Jacqueline Llanos, Enrique Espina, Doris Saez, Mark Sumner

Show (Yes/No): Comments:

11:56-12:09 **A New Robust Control Strategy for Grid-Forming Voltage Source Converters**

Saeed Ouni, S. Milad Hoseinizadeh, Houshang Karimi, Jean Mahseredjian

Show (Yes/No): Comments:

12:09-12:22 **On Droop-based Voltage and Frequency Restoration Techniques for Islanded Microgrids**

Iresha Poonahela, Sertac Bayhan, Haitham Abu-Rub, Miroslav Begovic, Mohammad Shadmand

Show (Yes/No): Comments:

12:22-12:35 **Space Vector Modulation Scheme for Three-Phase Single-Stage SEPIC-Based Grid-Connected Differential Inverter**

Ahmed Shawky Ahmed Shawky, Mokhtar Aly, Emad M. Ahmed, Samir Kouro, Jose Rodriguez

Show (Yes/No): Comments:

12:35-12:48 **Control of Grid-tied Dual-PV LLC Converter using Adaptive Neuro Fuzzy Interface System (ANFIS)**

Sumana Ghosh, Abdullah Alhatlani, Reza Rezaii, Issa Batarseh

Show (Yes/No): Comments:

Room L

Thursday, 14 October 2021

11:30 - 12:50

S461 - SS Model Predictive Control for Power Converters

Chairs: Fadia SEBAALY, Hadi Y. KANAAN

11:30-11:43 Direct Predictive Control for a Nine-Level Packed E-Cell (PEC9) Converter Based Shunt Active Power Filter (SAPF)

Fadia Sebaaly, Hadi Y. Kanaan, Jose Rodriguez, Kamal Al-Haddad

Show (Yes/No): Comments:

11:43-11:56 Weighting Factorless Sequential Model Predictive Control Method with Fixed Switching Frequency for Five-Level T-type Photovoltaic Inverters

Mokhtar Aly, Fernanda Carnielutti, Ahmed Shawky, Emad M. Ahmed, Margarita Norambuena, Samir Kouro, Jose Rodriguez

Show (Yes/No): Comments:

11:56-12:09 Rapid Stabilization of DC Microgrids with CPLs: Nonlinear Model Predictive Control

Elham Kowsari, Jafar Zarei, Roozbeh Razavi-Far, Mehrdad Saif

Show (Yes/No): Comments:

12:09-12:22 Modulated Model Predictive Control for a Four-Leg Indirect Matrix Converter

Mohammad Hosseinzadeh, Maryam Sarebanzadeh, Marco Rivera, Javier Munoz

Show (Yes/No): Comments:

12:22-12:35 A Model Predictive Current Control for a Three-Phase Modular Matrix Converter

Maryam Sarebanzadeh, Mohammad Ali Hosseinzadeh, Marco Rivera, Javier Munoz

Show (Yes/No): Comments:

12:35-12:48 Model Predictive Control for an Improved Transformer-less Five-level PV Inverter Topology

Maryam Sarebanzadeh, Mohammad Hosseinzadeh, Cristian Garcia, Margarita Norambuena, Jose Rodriguez

Show (Yes/No): Comments:

Room M

Thursday, 14 October 2021

11:30 - 12:50

S102 - SS Advances in Component and System Modeling and Simulation of Power Systems in Transition to ConverterDominated Systems

Chairs: Phylcia Cicilio, Timothy Hansen

11:30-11:43 Diesel Generator Model Development and Validation using Moving Horizon Estimation

Manisha Rauniyar, Phylcia Cicilio, Niranjan Bhujel, Ujjwol Tamrakar, Timothy M. Hansen, Mariko Shirazi, Robert Fourney, Hossein Moradi Rekabdarkolae, Reinaldo Tonkoski

Show (Yes/No): Comments:

11:43-11:56 Model Development of Diesel Generator using Volts/Hertz Limiter and Comparing Governor Models for Remote Islanded Microgrids

Chinmay Shah, Phylcia Cicilio, Mariko Shirazi, David Light, Dayne Broderson, Richard Wies, Manisha Rauniyar, Reinaldo Tonkoski, Timothy M. Hansen

Show (Yes/No): Comments:

11:56-12:09 Cable Insulation Aging Simulation

Xuan Wang, Ahmed Arman, Mohammad Ali, Bin Zhang

Show (Yes/No): Comments:

12:09-12:22 Power factor optimization with semi-definite programming relaxation in three-phase wireless power transfer systems for electric vehicles

Shuang Nie, Zhichao Luo, Peter Lehn

Show (Yes/No): Comments:

12:22-12:35 Analyzing Rectangular Coil Wireless Power Transfer Based on Time Domain Discontinue Galerkin Method

Homa Arab, Bitar Arab, Steven Dufour, Kamal AL-Haddad

Show (Yes/No): Comments:

12:35-12:48 Evaluation of DC-DC buck-boost partial power converters for EV fast charging application

Rodrigo Venegas Muñoz, Hugues Renaudineau, Sebastian Rivera, Samir Kouro

Show (Yes/No): Comments:

Room A

Friday, 15 October 2021

07:00 - 08:20

T043 - TT Electrical Machines and Drives

Chairs: Xueqian Wang, Gaolin Wang

07:00-07:13 Capacitor Current Reduction of Double Three Phase PMSM Drive System by Real-time MPC

Akiyoshi Suzuki, Shinji Doki, Koji Imai, Yasuaki Aoki, Kosuke Kondo

Show (Yes/No): Comments:

07:13-07:26 Grid Current Harmonic Suppression for Motor Drive with Reduced DC-Link Capacitance in Weak Grid

Zekun Ren, Gaolin Wang, Dawei Ding, Guoqiang Zhang, Nannan Zhao, Dianguo Xu

Show (Yes/No): Comments:

07:26-07:39 Voltage-Current Hybrid Model Based Extended Flux Observer with Multiple SOGIs for Sensorless IPMSM Drives

Zhibin Feng, Guoqiang Zhang, Siqi Wang, Gaolin Wang, Dianguo Xu

Show (Yes/No): Comments:

07:39-07:52 Online Estimation of DC-Link Capacitance for Permanent Magnet Synchronous Motor Drive with Reduced DC-Link Capacitor

Bingqi Zhou, Gaolin Wang, Runfeng Gao, Guoqiang Zhang, Nannan Zhao, Dianguo Xu

Show (Yes/No): Comments:

07:52-08:05 Unknown Disturbance Compensation Control of PMSM based on Extended State Observer

Ziqiang Zhang, Xianting Zhang, Ruiqing Ma, Peng Chen, Weizhou Yang

Show (Yes/No): Comments:

08:05-08:18 A Modified Current Controlled Induction Motor Drive Based on Steady State Model of Vector Drive Using Proportional Resonant Controllers in Stationary Reference Frame

Himanshu Swami, Amit Kumar Jain

Show (Yes/No): Comments:

Room B

Friday, 15 October 2021

07:00 - 08:20

S291 - SS Emerging NearField Wireless Power Transfer Technologies

Chairs: Minfan Fu, Ming Liu

07:00-07:13 Bidirectional High-Frequency Inductive Power Transfer Systems Based on Differential Load-Independent Class E Converters

Yifan Jiang, Heyuan Li, Minfan Fu

Show (Yes/No): Comments:

07:13-07:26 Resonant circuit topology Comparison and CC / CV Characteristic Evaluation Considering the Difference in Power Supply in Capacitive Wireless Power Transfer circuits

Shunya Kuroda, Takehiro Imura

Show (Yes/No): Comments:

07:26-07:39 A Modular Stacked Architecture with Virtual AC Bus for Multi-port Wireless Energy Interconnection System

Minghua Zhou, Fuxin Liu, Kelin Lei, Xuling Chen

Show (Yes/No): Comments:

07:39-07:52 Analysis and Optimization of High-Power MCR Bidirectional WPT System With High Distance-Diameter Ratio

Haojie Shen, Fuxin Liu, Chaoyang Yan, Xuling Chen

Show (Yes/No): Comments:

07:52-08:05 Proposal of Sensorless Vehicle Detection Method for Start-up Current Control in Dynamic Wireless Power Transfer System

Takumi Hamada, Daisuke Shirasaki, Toshiyuki Fujita, Hiroshi Fujimoto

Show (Yes/No): Comments:

08:05-08:18 Optimal Coil Design and Control Strategy for a High-power and Medium-frequency Wireless Power Transfer System

Xiang Hao, Huan Zhang, Jibin Song, Ming Liu, Chengbin Ma

Show (Yes/No): Comments:

Room C

Friday, 15 October 2021

07:00 - 08:20

S091 - SS Advanced signal and image processing techniques for condition monitoring of Electric Machines and Drives

Chairs: Jose A Antonino-Daviu, Hubert Razik

07:00-07:13 On-line Method for High-sensitivity Leakage Current Measurement of Converter-connected Transformers in Microgrids

Geye Lu, Yang Wu, Dayong Zheng, Pinjia Zhang

Show (Yes/No): Comments:

07:13-07:26 Light-weight Convolutional Neural Network for Distracted Driver Classification

Duy-Linh Nguyen, Putro Muhamad Dwisnanto, Xuan-Thuy Vo, Kang-Hyun Jo

Show (Yes/No): Comments:

07:26-07:39 A New Diagonally Implicit Implementation of the Continuous-Discrete Extended Kalman Filters for State and Parameter Estimation of Nonlinear Dynamic Systems

Jean-Marie Guihal, Francois Auger, Nicolas Bernard, Emmanuel Schaeffer

Show (Yes/No): Comments:

07:39-07:52 Mechanical fault detection for induction motors based on vibrational analysis: a case study

Verdiana Del Rosso, Andrea Andreucci, Simonetta Boria, Maria Letizia Corradini, Antonio Ranalli

Show (Yes/No): Comments:

07:52-08:05 Local Mahalanobis Distance Envelope Using A Robust Healthy Domain Approximation For Incipient Fault Diagnosis

Junjie Yang, Claude Delpha

Show (Yes/No): Comments:

08:05-08:18 A Three-Phase Current Reconstruction Algorithm for an Improved Fault Tolerant Control Using Positive Fundamental Component Estimator

Abdelilah Chibani, Abdelmadjid Gouichiche, Zakaria Chedjara, Yacine Badaoui, Patrice Wira, Ahmed Safa

Show (Yes/No): Comments:

Room D

Friday, 15 October 2021

07:00 - 08:20

S051 - SS Advanced Sensing and Control for Intelligent Robots

Chairs: Zhan Li, Yang SHI

07:00-07:13 Immersive Operation System for Hexapod Robot with Follow-the-Contact-Point Gait Control

Yuya Murai, Shinkichi Inagaki, Tatsuya Suzuki

Show (Yes/No): Comments:

07:13-07:26 Local identification of 3D point cloud based on structured light

Zhang Jiahao, Zhang Jian

Show (Yes/No): Comments:

07:26-07:39 A Multi-target Tracking Algorithm for Fast-moving Workpieces Based on Event Camera

Yuanze Wang, Chenlu Liu, Sheng Li, Tong Wang, Weiyang Lin, Xinghu Yu

Show (Yes/No): Comments:

07:39-07:52 Path Planning of Mobile Robot Based on Adaptive Ant colony algorithm

Xiuqing Yang, Ni Xiong, Yong Xiang, Mingqian Du, Xinzhi Zhou, Yong Liu

Show (Yes/No): Comments:

07:52-08:05 Trajectory Control and Simulation of 6-DOF Robotic System Based On Screw Theory

Yong Xiang, Xiaoke Deng, Yi Chen, Chenlu Liu, Xiaobo Xu, Mao Li

Show (Yes/No): Comments:

08:05-08:18 Subpixel segmentation for ceramic defects

Weihua Liu, Xianqiang Yang, Yimin Wang, Xuebo Yang, Weiyang Lin

Show (Yes/No): Comments:

Room E

Friday, 15 October 2021

07:00 - 08:20

T023 - TT Control System, Robotics and Automation

Chairs: Zhiguang Feng, Qinyuan Ren

07:00-07:13 Tele-driving including time-varying delay based on MPC with stability constraints

Hiroki Nagakura, Yuhei Hatori, Yutaka Uchimura

Show (Yes/No): Comments:

07:13-07:26 Multi-surface Sliding Mode Control of a Thrust Vectored Quadcopter with a Suspended Double Pendulum Weight

Clevon Peris, Michael Norton, Sui Yang Khoo

Show (Yes/No): Comments:

07:26-07:39 Plug-and-play adaptation in autopilot architectures for unmanned aerial vehicles

Peng Li, Di Liu, Simone Baldi

Show (Yes/No): Comments:

07:39-07:52 Multi-Agent Cooperative Pursuit-Evasion Control Using Gene Expression Programming

Yinjie Ni, Shuhua Gao, Sunan Huang, Cheng Xiang, Qinyuan Ren, Tong Heng Lee

Show (Yes/No): Comments:

07:52-08:05 sGS-sPALM for Optimal Decentralized Control: A Distributed Optimization Approach

Xiaoxue Zhang, Jun Ma, Zilong Cheng, Wenxin Wang, Xiaolong Chen, Tong Heng Lee

Show (Yes/No): Comments:

08:05-08:18 An Effective Neuro-adaptive Control Approach for Underwater Flexible Cranes With Uncertainties

Yue Wang, Zhengguo Zheng, Ning Sun, Tong Yang, He Chen, Zhuoqing Liu

Show (Yes/No): Comments:

Room F

Friday, 15 October 2021

07:00 - 08:20

T073 TT Motion Control and Mechatronics

Chairs: Zhang Chen, Feng Shu

07:00-07:13 Fault Tolerance Algorithm of Steering Actuator in Three-Wheeled Electric Mobility Based on Model Predictive Control

JungHyun Choi, Hiroshi Fujimoto, Sehoon Oh

Show (Yes/No): Comments:

07:13-07:26 Adaptive Iterative Sliding Mode Control: Development, Synthesis, and Application of a Flexure-Joint Biaxial Gantry Stage

Wenxin Wang, Jun Ma, Zilong Cheng, Xiaoxue Zhang, Xiaolong Chen, Xiaocong Li, Tong Heng Lee

Show (Yes/No): Comments:

07:26-07:39 Fractional-Order Sliding Mode Control with Adaptive Neural Network for High-Precision Position Control of Reluctance Actuators

Zidong Liu, Yunlang Xu, Pan Wang, Xiaofeng Yang, Zhi Li, Feng Shu

Show (Yes/No): Comments:

07:39-07:52 Autonomous Parameter Design for Cascade Structure Feedback Controller Based on Time and Frequency Domain Optimization

Eitaro Kuroda, Yoshihiro Maeda, Makoto Iwasaki

Show (Yes/No): Comments:

07:52-08:05 Cascaded NMPC for the Precise Position Control of a Pneumatic Actuator

Ricus Husmann, Harald Aschemann

Show (Yes/No): Comments:

08:05-08:18 A nonlinear optimal control approach for voltage source inverter-fed three-phase PMSMs

Gerasimos Rigatos, Masoud Abbaszadeh, Patrice Wira, Pierluigi Siano

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room G

Friday, 15 October 2021

07:00 - 08:20

S121 - SS Advances in Electric Vehicle Charging and Next Generation Wireless Technology

Chairs: Rajesh Gupta, Karthikeyan V.

07:00-07:13 Bidirectional Power Flow Control of Single Phase Matrix Converter Based Hybrid WPT for E-Vehicle Charging and Discharging

Abhishek Singhal, Narsa Reddy Tummuru

Show (Yes/No): Comments:

07:13-07:26 Wind Energy based EV Charging Station along with Power Quality Enhancement

Zubaida Khan, Rajesh Gupta

Show (Yes/No): Comments:

07:26-07:39 Maximum Output Power Design Considering the Efficiency in Wireless Power Transfer Coils

Yuto Yamada, Takehiro Imura

Show (Yes/No): Comments:

07:39-07:52 A Rack Coil for Metal Foreign Object Detection in WPT System

Chao Qi, Hongyu Duan, Junwei Guo, Tian Sun, Wenwu Wang, Funing Yang

Show (Yes/No): Comments:

07:52-08:05 Proposal of Ferrite-less and Capacitor-less 85 kHz Four-layer Coil for Stationary Wireless Power Transfer

Koki Hanawa, Takehiro Imura

Show (Yes/No): Comments:

08:05-08:18 A Novel Type of V-Trench SiC-MOSFET and an Improved High-Power Single-Ended Inverter for very Low Loss Operation

Shougo Hirooka, Hideki Omori, Kunihiro Sakamoto, Toshimitsu Morizane, Hidehito Matayoshi

Show (Yes/No): Comments:

Room H

Friday, 15 October 2021

07:00 - 08:20

T123 - TT Signal and Image Processing and Computational Intelligence

Chairs: Xianke Dong, Bernhard Haslhofer

07:00-07:13 Learning Rule Optimization and Comparative Evaluation of Accelerated Self-Organizing Maps for Industrial Applications

Madhavi Gayathri, Amanda Ariyaratne, Sachin Kahawala, Daswin De Silva, Damminda Alahakoon, Vishaka Nanayakkara, Evgeny Osipov, Xinghuo Yu

Show (Yes/No): Comments:

07:13-07:26 Adaptive change detection of the temperature pattern of the face for identifying deceit

Saswata Satpathi, Sourav Bagchi, Aurobinda Routray, Parthasarathi Satpathi, Ritwik Dash

Show (Yes/No): Comments:

07:26-07:39 On an improved F0 estimation based on l2-norm regularized TV-CAR speech analysis using pre-filter

Keiichi Funaki

Show (Yes/No): Comments:

07:39-07:52 Attention based Object Classification for Drone Imagery

Choi Jehwan, Jo Kanghyun

Show (Yes/No): Comments:

07:52-08:05 Human Face Detection and Tracking Using RetinaFace Network for Surveillance Systems

Moh. Edi Wibowo, Ahmad Ashari, Ardacandra Subianto, Wahyono Wahyono

Show (Yes/No): Comments:

08:05-08:18 Transfer Learning Strategies for Anomaly Detection in IoT Vibration Data

Clemens Heistracher, Anahid Jalali, Indu Strobl, Axel Suendermann, Sebastian Meixner, Stephanie Holly, Daniel Schall, Bernhard Haslhofer, Jana Kemnitz

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room I

Friday, 15 October 2021

07:00 - 08:20

T093 - TT Power Electronics & Energy Conversion

Chairs: Yulin Si, Kaiyun Lu

07:00-07:13 Modeling and Design Considerations in the Control of an Isolated Bidirectional Electric Vehicle Charger

Goutam Ghosh, Viju Nair

Show (Yes/No): Comments:

07:13-07:26 Design and Experiment of a New Wave Power Conversion Device for Self-Powered Sensor Buoy

Hengyu Wang, Weimin Wu, Lixun Zhu, Eftichios Koutroulis, Kaiyun Lu, Frede Blaabjerg

Show (Yes/No): Comments:

07:26-07:39 Two-Stage Wide-Output High-Frequency-Voltage Inverter for Electrosurgical Generator

Ling Gu, Lingchen Wang

Show (Yes/No): Comments:

07:39-07:52 A Voltage Overshoot Design Method for DC-DC Converter Based on State Overshoot Concept

Hong Li, Qian Liu, Zhipeng Zhang, Xiaoheng Jiang, Guoen Cao, Yajing Zhang

Show (Yes/No): Comments:

07:52-08:05 Multistage High Gain DC-DC Converter Topologies using SDLC Network for DC microgrid

Sija Gopinathan, V. Seshagiri Rao, Kumaravel S

Show (Yes/No): Comments:

08:05-08:18 A Virtual Inertia Control Strategy with Current Feedforward to Improve Voltage Stability for Power Router

Shaokun Niu, Tong Liu, xl Liu, Qicai Ren, Zhiwei Chen, Alian Chen

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room J

Friday, 15 October 2021

07:00 - 08:20

T131 - TT TT Renewable Energy Systems and Smart Grid

Chairs: Yang Tang, Brendan McGrath

07:00-07:13 A Novel Spotted Hyena Optimization for MPPT under Partial Shading Conditions

Swetha K.T., Barry Venugopal Reddy, Abin Robinson, Rohit Kumar Jain

Show (Yes/No): Comments:

07:13-07:26 Research on High Proportion Renewable Energy of Hybrid Energy Storage Containing Hydrogen Storage

Ying Wang, Yong Gang Li, Xiuting Sun, Shumin Zhao

Show (Yes/No): Comments:

07:26-07:39 A Low-cost and Stand-alone Ground Based Sensing Station for Efficient Solar Forecasting in PV Power Systems

Qiyang Lei, Xiaozhou Liu, Weidong Xiao, Yang Du

Show (Yes/No): Comments:

07:39-07:52 Dynamic Flexible Power Point Tracking in Photovoltaic Power Plants

Aditi Narang, Ghias G. Farivar, Hossein D. Tafti, Salvador Ceballos, Josep Pou, Christopher D. Townsend, Georgios Konstantinou

Show (Yes/No): Comments:

07:52-08:05 Novel Shade Dispersion Method to Extract Maximum Power under partial shading condition

Vinaya Chandrakant Chavan, Suresh Mikkili, Praveen Kumar Bonthagorla

Show (Yes/No): Comments:

08:05-08:18 Solar PV Detection Using an Optimal Template Approach with Genetic Algorithm

Wenhua Ling, Geordie Dalzell, Xinghuo Yu, Brendan McGrath, Peter Sokolowski

Show (Yes/No): Comments:

Room K

Friday, 15 October 2021

07:00 - 08:20

S032 - SS Advanced Electrical Machines and Drives for Transportation Electrification

Chairs: Qingsong Wang, Xing Zhao

07:00-07:13 Speed Synchronous Control of Dual-BLDCMs based on MRAC for a Hoist Application

Weizhou Yang, Ruiqing Ma, Tianxing Li, Qianbao Mi, Ziqiang Zhang, Jiayong Peng

Show (Yes/No): Comments:

07:13-07:26 Phase-lead Repetitive Control of a PMSM with Field-oriented Feedback Linearization and a disturbance observer

Yusai Zheng, Zhenwei Cao, Zhihong Man, Artheec Kumar, Song Wang

Show (Yes/No): Comments:

07:26-07:39 Networked PMSM System with Multiple-step Predictive Control and Sliding Mode Control

Yanmin Wang, Guangxin Duan, Yuchen Liu

Show (Yes/No): Comments:

07:39-07:52 Multi-Objective Optimization of a Quadruple 3-Phase Inductive Electrically Excited Synchronous Machine for 48V Traction Drives

Andreas Gneiting, Nejila Parspour

Show (Yes/No): Comments:

07:52-08:05 AC Losses Analysis Approaches for Electric Vehicle Motors with Hairpin Winding Configuration

Payam Shams Ghahfarokhi, Andrejs Podgornovs, Antonio J. Marques Cardoso, Ants Kallaste, Anouar Belahcen, Toomas Vaimann

Show (Yes/No): Comments:

08:05-08:18 Rapid analytical method to evaluate eddy current losses in hairpin wound IM due to PWM

Lino Di Leonardo, Andrea Credo, Marco Tursini, Marco Villani

Show (Yes/No): Comments:

Room L

Friday, 15 October 2021

07:00 - 08:20

S243 - SS DCDC Converters Circuits, Modeling, Control and Applications

Chairs: Mahajan Sagar Bhaskar, Sanjeevikumar Padmanaban

07:00-07:13 A Novel Switching Loss Analysis of Coupled-Inductor Impedance-Source Inverters

Hongpeng Liu, Lai Wei, Qingchao Kong

Show (Yes/No): Comments:

07:13-07:26 Comprehensive Analysis on the Imbalance of Voltage and Current in Multi-module Series-parallel WPT Systems

Shuci Yu, Fuxin Liu, Minghua Zhou, Xuling Chen

Show (Yes/No): Comments:

07:26-07:39 Small Signal Modeling of Series Resonant Converter based on State-plane Analysis

Vishal Anand Aisur Gopalakrishnan, Utsab Kundu, Ranganathan Gurunathan, Kaushik Basu

Show (Yes/No): Comments:

07:39-07:52 A High efficiency and High power density Asymmetrical Half-bridge Flyback Converter for Data Centers

Mingxiao Li, Ziwei Ouyang, Michael A.E. Andersen

Show (Yes/No): Comments:

07:52-08:05 Power loss modelling and efficiency optimization of a multi-output Flyback converter

Fabio Cacciotto, Mirko Sciortino, Danilo Termini, Mario Cacciato, Santi Agatino Rizzo, Giacomo Scelba

Show (Yes/No): Comments:

08:05-08:18 Novel Isolated Multiple-Input Buck-Boost DC-DC Converter for Renewable Energy Sources

Immanuel Ninma Jiya, Huynh Van Khang, Ahmed Salem, Nand Kishor, Rade Ciric

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room M

Friday, 15 October 2021

07:00 - 08:20

S421 - SS Internet of Things Technology for Industrial Smart City Applications

Chairs: Umair Mujtaba QURESHI, Zuneera UMAIR

07:00-07:13 Designing a System for Data-driven Risk Assessment of Solar Projects

Zuneera Umair, Inez M. Zwetsloot, Luk Kin Ming Marco, Jiwoo Shim, Daniil Kostromin

Show (Yes/No): Comments:

07:13-07:26 A Two-step Barrier Coverage Redeployment Strategy for Hybrid Sensor Networks

Hao Zhou, Gong Chen, Yonghua Xiong, Jinhua She

Show (Yes/No): Comments:

07:26-07:39 Mobile Proximity Channel Using Vibration

Kam Hon Lau, Umair Mujtaba Qureshi, Bruno Silva, Gerhard Petrus Hancke

Show (Yes/No): Comments:

07:39-07:52 Activity Monitoring of the Potential COVID-19 Individuals in Quarantine Facility

Mehak Fatima Qureshi, Rizwan Ahmed Kango, Nafeesa Zaki, Faisal Karim Shaikh

Show (Yes/No): Comments:

07:52-08:05 Altitude Calibration toward Floor Change Detection

Benjawan Srisura, Piyakul Tillapart, Suparwat Charoenvikrom, Songsak Channarukul

Show (Yes/No): Comments:

08:05-08:18 A Differential Evolution Approach to Trust based Ridesharing Systems

Fu-Shiung Hsieh

Show (Yes/No): Comments:

Room N

Friday, 15 October 2021

07:00 - 08:20

S342 - SS Fuel Cell System Application in Transportation Electrification

Chairs: Rui Ma, Elena Breaz

07:00-07:13 An Optimization Energy Management Strategy Based on Dynamic Programming for Fuel Cell UAV

Yigeng Huangfu, Tianying Yu, Shengrong Zhuo, Wenzhuo Shi, Zelong Zhang

Show (Yes/No): Comments:

07:13-07:26 PEMFC water management fault diagnosis method based on principal component analysis and support vector data description

Lu JingJing, Gao Yan, Zhang LuYu, Li Kai, Yin Cong

Show (Yes/No): Comments:

07:26-07:39 Modeling of Pt Degradation in Polymer Electrolyte Fuel Cells: Effect of Electrode Potential Cycles

Weibo Zheng, Liangfei Xu, Zunyan Hu, Yujie Ding, Jianqiu Li, Minggao Ouyang

Show (Yes/No): Comments:

07:39-07:52 A Novel Power Decoupling Control Strategy for Brushless Doubly-Fed Machine

Yonglu Chen

Show (Yes/No): Comments:

07:52-08:05 Observer-based Adaptive Sliding Mode Control of Interleaved Boost Converter for Fuel Cell Vehicles

Xinyang Hao, Issam Salhi, Salah Laghrouche, Youcef Ait Amirat, Abdesslem Djerdir

Show (Yes/No): Comments:

08:05-08:18 Dynamic Modelling of Fuel Cell Systems for Electric Propulsion

Nastaran Shakeri, Mehdi Zadeh

Show (Yes/No): Comments:

Room O

Friday, 15 October 2021

07:00 - 08:20

S221 - SS DC Grid Technologies and Applications DC Grid Technologies, Circuit Breakers, Protection and Control

Chairs: Satish Naik Banavath, Harish Krishnamoorthy

07:00-07:13 A Boost Converter Integrated With DC Circuit Breaker

Yuyang Liu, Yufeng Wang, Shuai Ding, Yufei Tao, Weilin Li

Show (Yes/No): Comments:

07:13-07:26 Enhancement of DC MCB Performance using Power Semiconductor Devices

Muhammed Ajmal C, Venkata Raghavendra Itte, Satish Naik B

Show (Yes/No): Comments:

07:26-07:39 H-bridge Based Bidirectional Z-Source DC Circuit Breaker with Improved Device Stress and Automatic Reclosing Capability

Venkata Raghavendra Itte, Satish Naik B, Sreekanth Thamballa

Show (Yes/No): Comments:

07:39-07:52 Enhancement of Power Rating for a Bidirectional DC Circuit Breaker using Modular Commutation Circuits

Shubham Agrawal, Subba Reddy B, Loganathan Umanand

Show (Yes/No): Comments:

07:52-08:05 Comparison of Switching Patterns of SVM for a Novel High Gain Indirect Matrix Converter

Maraka Israyelu, Sashidhar Sampathirao

Show (Yes/No): Comments:

08:05-08:18 Current Source Isolated Bidirectional Series Resonant DC-DC Converter for Solar Power/Fuel Cell and Energy Storage Application

Kiran Bathala, Dharavath Kishan, Nagendrappa Harischandrappa

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room P

Friday, 15 October 2021

07:00 - 08:20

S571 - SS Power Efficiency and Smart Measures Based on Advanced Techniques

Chairs: Djaffar OULD ABDESLAM, Dirk Benyoucef

07:00-07:13 Recommendation System for Energy Consumption Behavior Change on Residents' Response and Stress

Yuki Takayama, Yuiko Sakuma, Hiroaki Nishi

Show (Yes/No): Comments:

07:13-07:26 High Frequency PCB Trace Current Measurement in Power Converters Based on Tunnel Magnetoresistance

Weicong Lin, Shuai Shao, Junming Zhang

Show (Yes/No): Comments:

07:26-07:39 Air-Conditioning Control with Spatial Recognition Using Stereo Infrared Array Sensors

Yuki Takayama, Saki Saito, Yuiko Sakuma, Hiroaki Nishi

Show (Yes/No): Comments:

07:39-07:52 An Improved Incremental Conductance Based MPPT Algorithm for Photovoltaic Systems

Yacine Triki, Ali Bechouche, Hamid Seddiki, Djaffar Ould Abdeslam

Show (Yes/No): Comments:

07:52-08:05 Hybrid AI improves Energy Forecasts by combining Fuzzy Rules, Evolutionary Strategies and Neural Networks

Matthias Lermer, Christoph Reich, Djaffar Ould Abdeslam

Show (Yes/No): Comments:

Room Q

Friday, 15 October 2021

07:00 - 08:20

S731 - SS Static and dynamic wireless charging solution for EVs Coil configuration, design, and control of power electronics converters

Chairs: Subrata Banerjee, Kundan Kumar

07:00-07:13 Methodology of Inductive Power Transfer Asymmetrical Coils Design for Space-Constrained Applications

Hou-Wa Wong, Kin-Long Leong, Io-Wa lam, Lok-U Hoi, Chi-Seng Lam

Show (Yes/No): Comments:

07:13-07:26 Three-element compensation network for DWPT systems for power transfer boosting

Rupesh Kumar Jha, Sireesha Tamada, Anand Kumar, Swati Jaiswal, Giuseppe Buja

Show (Yes/No): Comments:

07:26-07:39 An Inductive Power Transfer Converter with Irradiance-Adaptive Hybrid MPPT Control Strategy for Floating-PV System

Chio-Kuan Choi, Io-Wa lam, Lok-U Hoi, Chi-Seng Lam

Show (Yes/No): Comments:

07:39-07:52 Comparative Analysis of Classical and Predictive Control of Bidirectional Quasi Z-Source Converter

Md Tuhin Rana, Anurag Sarkar, Md Abid, Subrata Banerjee, Kundan Kumar

Show (Yes/No): Comments:

07:52-08:05 Simulation Analysis of Different Operating Modes of ZETA-SEPIC Converter for Electrical Vehicles

Ankit Sagathiya, Ronak Babariya, Jiten Chavda, Saraswat Shivani

Show (Yes/No): Comments:

08:05-08:18 Parallel Collaborative Motion Planning with Alternating Direction Method of Multipliers

Xiaoxue Zhang, Zilong Cheng, Jun Ma, Lin Zhao, Cheng Xiang, Tong Heng Lee

Show (Yes/No): Comments:

Room R

Friday, 15 October 2021

07:00 - 08:20

S311 - SS Emerging Techniques in Design, Optimization, and Interconnection with the Grid for Solar Photovoltaic System

Chairs: Mohd Tariq, Ali I. Maswood

07:00-07:13 A Single Input Dual Output High Gain DC-DC Converter With Reduced Voltage Stress

Shahrukh Khan, Kush Varshney, Mohammad Zaid, Mohd Tariq, Javed Ahmad, Zeeshan Sarwer

Show (Yes/No): Comments:

07:13-07:26 CORDIC based Orthogonal Signal Generation with In-loop Moving Average Filter for Single Phase PLL Systems

Muddasani Satyanarayana, A V Ravi Teja

Show (Yes/No): Comments:

07:26-07:39 Flexible Power Point Tracking Algorithm for Photovoltaic Systems Using the Newton's Method

Anusha Kumaresan, Hossein Dehghani Tafti, Glen G. Farivar, Naga Brahmendra Yadav Gorla, Neha Beniwal, Josep Pou

Show (Yes/No): Comments:

07:39-07:52 A Novel Converter-level Si Material Degradation Monitoring Method Based on the DC Bus Leakage Current

Qinghao Zhang, Geye Lu, Pinjia Zhang

Show (Yes/No): Comments:

07:52-08:05 Adaptive Active Grounding Fault Regulation Method Considering the Influence of Line Impedance in Distribution Network

Yuchao Hou, Qi Guo, Chunming Tu, Jiayuan Gao, Fei Jiang, Fan Xiao

Show (Yes/No): Comments:

08:05-08:18 A Novel Method for Calculating the Three-phase Unbalanced Shunt Compensation Current in the Low Voltage Distribution Network

Li Yin, Alian Chen

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Plenary & Keynote

Friday, 15 October 2021

08:30 - 09:00

IECON2021 Keynote 5: Praveen Jain

Resonant Power Conversion: Insights from a Lifetime of Experience

Praveen Jain

Queen's University, Canada

Chairs: Makoto Iwasaki,

47th Annual Conference of the IEEE Industrial Electronics Society

Plenary & Keynote

Friday, 15 October 2021

09:00 - 09:30

IECON 2021 Keynote 6: Jay Iyengar

Trends in Off-Hwy vehicle Electrification Technology

Jay Iyengar

Chief Technology Officer, CNH Industria

Chairs: Makoto Iwasaki,

47th Annual Conference of the IEEE Industrial Electronics Society

Room C

Friday, 15 October 2021

10:00 - 10:20

ICELIE 2021 Opening

Chairs: Larisa Dunai, Gayan Kahandawa

Room A

Friday, 15 October 2021

10:00 - 11:20

T048 - TT Electrical Machines and Drives

Chairs: Qingsong Wang, Xing Zhao

10:00-10:13 **Enhanced Cooling of Multilayer PCB Motor Windings Using Thermal Vias**

Andreas Bauer, Benjamin H. Zacher, Christian Schumann

Show (Yes/No): Comments:

10:13-10:26 **Saliency-Based Position Sensorless Control of a Heavily Cross-Saturated PMSM**

Richard Spiessberger, Andreas Brunner, Manfred Schroedl

Show (Yes/No): Comments:

10:26-10:39 **Thermal Modelling of a Liquid Cooled Traction Machine with 8-layer Hairpin Windings**

Antonino La Rocca, Tianjie Zou, Mohsen Moslemin, David Gerada, Chris Gerada, Alasdair Cairns

Show (Yes/No): Comments:

10:39-10:52 **Design and Optimization of a Quadruple 3-Phase Permanent Magnet Assisted Synchronous Reluctance Machine**

Dennis Grundmann, Andreas Gneiting, Julian Marius Fischer, Nejila Parspour

Show (Yes/No): Comments:

10:52-11:05 **Prediction of the Impact of Thermal Cycling on Machine Lifetime Based on Accelerated Life Testing and Finite Element Analysis**

David A. Hewitt, Jiabin Wang

Show (Yes/No): Comments:

11:05-11:18 **Steady-state Thermal Analysis of the Contact in Bearings Exposed to Electrical Currents**

Omid Safdarzadeh, Martin Weicker, Andreas Binder

Show (Yes/No): Comments:

Room B

Friday, 15 October 2021

10:00 - 11:20

T0412 - TT Electrical Machines and Drives

Chairs: Shoujun Song, Atif Iqbal

10:00-10:13 Lifetime characterization of partial discharge properties of insulation material exposed to voltage pulse stress

Ali Qerkini, Markus Vogelsberger, Werner Grubelnik, Edgar Moser, Thomas Wolbank

Show (Yes/No): Comments:

10:13-10:26 A Novel Resistance Optimization Approach for Non-Regenerative Resistive Dynamic Braking for PMSM

Melih Nafi Ekim, Alpay Oguz Unal, Ali Bekir Yildiz

Show (Yes/No): Comments:

10:26-10:39 Performance Comparison of Different IPM Motor Topologies for Spindle Motor Drives

Oguzhan Ocak, Mehmet Gulec, Metin Aydin

Show (Yes/No): Comments:

10:39-10:52 Speed, EMF and Rotor Position Estimation of PMSM using Phase Locked Loop and Simple Sliding Mode Observer

Mihai Comanescu

Show (Yes/No): Comments:

10:52-11:05 Modified Virtual Inertia Mechanism Based ESS for A real Multi-Source Power System Application: the Egyptian Grid

Hussein Abubakr, Josep M. Guerrero, Juan C. Vasquez

Show (Yes/No): Comments:

11:05-11:18 Real-time simulation Model of Ultracapacitors for Frequency Stability Support from Wind Generation

Chenrui Zhang, Elyas Rakhshani, Nidarshan Veera Kumar, Jose Luis Rueda Torres, Peter Palensky, Francisco Gonzalez-Longatt

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room D

Friday, 15 October 2021

10:00 - 11:20

INTEROP3 - IEEE 1451 & Wireless Interface

P1451.0, Lee/Song/Schmalzel

P1451.5X, Kim Fung Tsang

IEEE 1451 & IEC 61499 Interoperability, Reza Abrishambaf

OPEN DISCUSSIONS

Chairs: Allen Chen, Eugene Song

Room E

Friday, 15 October 2021

10:00 - 11:20

T028 - TT Control System, Robotics and Automation

Chairs: Yunsong Xu, Okyay Kaynak

10:00-10:13 Robust Discrete-Time Sliding-Mode Control for a Duocopter Using an Extended Kalman Filter

Joey-Falk Woitas, Harald Aschemann

Show (Yes/No): Comments:

10:13-10:26 Flexible Multibody System Model of a Spider Crane with two Extendable Booms

Anja Patricia Regina Lauer, Boris Blagojevic, Otto Lerke, Volker Schwieger, Oliver Sawodny

Show (Yes/No): Comments:

10:26-10:39 Change-based causes in counterexample explanation for model checking

Polina Ovsianikova, Antti Pakonen, Valeriy Vyatkin

Show (Yes/No): Comments:

10:39-10:52 Efficient Polyline Surface Mapping with Strong Error Bounds

Yujie Lian, Georg Rempfer, Hadi Askaripoor, Jonas Landsgesell, Alois Knoll

Show (Yes/No): Comments:

10:52-11:05 Robust Fault-Tolerant Control Design for Fuzzy Networked Control Systems with Data Drift and Sensor Failure

Jafar Zarei, Hossein Kargar, Roozbeh Razavi-Far, Mehrdad Saif

Show (Yes/No): Comments:

11:05-11:18 On the Interaction Force Sensing Accuracy Of Franka Emika Panda Robot

Razvan Andrei Budau Petrea, Massimiliano Bertoni, Roberto Oboe

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room F

Friday, 15 October 2021

10:00 - 11:20

S161 - SS Advances in Renewable Energy Systems Resilient Control

Chairs: Mohamed Benbouzid, Hafiz Ahmed

10:00-10:13 A Data-Driven Detection strategy of False Data in Cooperative DC Microgrids

Yixian Yang, Li Guo, Xialin Li, Jiaxin Li, Wei Liu, Huihui He

Show (Yes/No): Comments:

10:13-10:26 Combined Control of Grid Connected Converters for Resiliency Improvement of Smart Micro Grids against Multiple Risks

Mohammadsadegh Eslahi, Sadegh Vaez-Zadeh, Jose Rodriguez

Show (Yes/No): Comments:

10:26-10:39 A Modified Perturb and Observe MPPT Method for Photovoltaic Power Systems

Rasool Kahani, Mohsin Jamil

Show (Yes/No): Comments:

10:39-10:52 Using Electric Water Heater Tank as an Energy Storage Solution to Solve the Duck Curve Issue

Nicolas Sockeel, Sumit Srivastava, Benjamin Futrell, Robert Cox, Michael Mazzola

Show (Yes/No): Comments:

10:52-11:05 Hybrid Fault-Tolerant and Cyber-Resilient Control for PV System at Microgrid Framework

Saeedreza Jadidi, Hamed Badihi, Youmin Zhang

Show (Yes/No): Comments:

11:05-11:18 PLL-Based Sensorless Control for Single-Stage Current Source Inverter in Motor Drive Application

Emilio Carfagna, Giovanni Migliazza, Giampaolo Buticchi, Emilio Lorenzani, Zhuang Xu, Zhixiang Zou, He Zhang

Show (Yes/No): Comments:

Room G

Friday, 15 October 2021

10:00 - 11:20

T065 - TT Industrial Automation, Communication, Networking and Informatics

Chairs: Jan Haase, Alexander Fay

10:00-10:13 Towards the Digitization using Asset Administration Shells

Lucas Sakurada, Paulo Leitao, Fernando De la Prieta

Show (Yes/No): Comments:

10:13-10:26 Multi-agent System for Monitoring Temperature in Sensing Surfaces including Hard and Soft Sensors

Fabio Amaral, Lucas Sakurada, Paulo Leitao, Jorge Larangeira

Show (Yes/No): Comments:

10:26-10:39 Middleware Architecture for Application Layer Interoperability of Standardized Digital Representations

Harish Kumar Pakala, Alexander Belyaev, Christian Diedrich

Show (Yes/No): Comments:

10:39-10:52 Co-Design Process for Upskilling the Workforce in the Factories of the Future

Carla Geraldés, Florbela Fernandes, Lucas Sakurada, Ann Lilith Rasmussen, Rene Bennyson, Umberto Pellegrini, Paulo Leitao

Show (Yes/No): Comments:

10:52-11:05 Towards cloud-based virtual commissioning of distributed automation applications with IEC 61499 and containerization technology

Tuojian Lyu, Udayanto Atmojo, Valeriy Vyatkin

Show (Yes/No): Comments:

11:05-11:18 Missing Data Imputation for Real Time-series Data in a Steel Industry using Generative Adversarial Networks

Kisan Sarda, Amol Yerudkar, Carmen Del Vecchio

Show (Yes/No): Comments:

Room H

Friday, 15 October 2021

10:00 - 11:20

S301 - SS Emerging Techniques in Design, Optimization and Testing of Traction Electric Machines for Electrified Transportation

Chairs: Wenlong Li, Mohammad Sedigh Toulabi

10:00-10:13 **Sustainability Aspects of Electrical Machines For E-Mobility Applications Part II: Aluminium Hairpin vs. Copper Hairpin**

Alessandro Acquaviva, Michela Diana, Bharadwaj Raghuraman, Linnea Petersson, Shafiqh Nategh

Show (Yes/No): Comments:

10:13-10:26 **Multiobjectively optimized PMSynRM cooling for increased vehicle efficiency**

Raik C. Orbay, Alexandra Tokat, Michele Becciani, Torbjörn Thiringer, Georgios Mademlis, Aditya Pratap Singh, Carl Holmberg

Show (Yes/No): Comments:

10:26-10:39 **Performance Comparison Between Rare-Earth and Ferrite-based PM Transverse Flux Generator for Small-Scale Direct-Drive Wind Turbine**

Reza Nasiri-Zarandi, Ahmadreza Karami-Shahnani, Mohammad Sedigh Toulabi

Show (Yes/No): Comments:

10:39-10:52 **Torque and Loss Optimized Rotor Bar Design for an Induction Machine Using a Nondominated Genetic Algorithm Through Objective Function Modeling**

Tim Stachl, Areej Fatima, Mohammad Sedigh Toulabi, Wenlong Li, Anthony Lombardi, Jimi Tjong, Narayan C. Kar

Show (Yes/No): Comments:

10:52-11:05 **Permeance-Based Equivalent Circuit Modeling of Induction Machines Considering Leakage Reactances and Non-Linearities for Steady-State Performance Prediction**

Areej Fatima, Tim Stachl, Mohammad Sedigh Toulabi, Wenlong Li, Jimi Tjong, Glenn Byczynski, Narayan C. Kar

Show (Yes/No): Comments:

11:05-11:18 **Improvement of Electromagnetic Force and Acceleration in an Asymmetrical Star-Delta Winding IPMSM through Stator and Rotor Geometrical Modifications**

Pengzhao Song, Mohammad Sedigh Toulabi, Wenlong Li, Shruthi Mukundan, Glenn Byczynski, Jimi Tjong, Narayan C. Kar

Show (Yes/No): Comments:

Room I

Friday, 15 October 2021

10:00 - 11:20

T097 - TT Power Electronics & Energy Conversion

Chairs: Gonzalo Abad, Samir Kouro

10:00-10:13 Current Sensorless Control Strategy for Nine-Level Packed-E-Cell Rectifier

Naki Guler, Hasan Komurcugil, Sertac Bayhan, Samet Biricik

Show (Yes/No): Comments:

10:13-10:26 Comprehensive Analysis of Harmonic Signature Resulting from Open Switch Fault in Interleaved Boost Converter

Abdelmadjid Gouichiche, Yacine Badaoui, Ahmed Safa, Abdelilah Chibani, Mohamed Benbouzid, Zakaria Chedjara

Show (Yes/No): Comments:

10:26-10:39 Modeling, Analysis and Control of Current Source Converter

Quentin Combe, Serge Pierfederici, Mathieu Weber, Stephane Dufour

Show (Yes/No): Comments:

10:39-10:52 General DAB 1st Harmonic TPS State Space Model

Simon Uicich, Jean-Yves Gauthier, Xuefang Lin Shi, Bruno Allard, Arnaud Plat

Show (Yes/No): Comments:

10:52-11:05 On the impact of controller implementations on passivity and damping properties in grid-following MMC-HVdc applications

Carolin Hirsching, Alexander Bisseling, Simon Wenig, Max Goertz, Christina Bischoff, Michael Suriyah, Thomas Leibfried

Show (Yes/No): Comments:

11:05-11:18 Managing Inrush Current in A Variable Speed Drive Short Term Power Interruption Ride-Through Module

Freeman Chiranga, Lesedi Masisi

Show (Yes/No): Comments:

Room J

Friday, 15 October 2021

10:00 - 11:20

T132 - TT TT Renewable Energy Systems and Smart Grid

Chairs: Fernando Lezama, Zita A. Vale

10:00-10:13 Implementation and Performance Analysis for Energy Harvesting-based Wireless Sensor Networks

Nga Dinh Haugen, ØYstein Tveito, Phuong Ha, Otto Anshus

Show (Yes/No): Comments:

10:13-10:26 ANN Based Power Management Strategy For Standalone Microgrids

Preetha Sreekumar, Maitha Alhosani, Vinod Khadkikar

Show (Yes/No): Comments:

10:26-10:39 Generation of a TMY for Tripoli City Using the Finkelstein & Schafe Statistical Method

Farag Alargt, Yosof Khalifa, Ahmad Kharaz

Show (Yes/No): Comments:

10:39-10:52 Design and Computational Fluid Dynamics Simulation of a Novel Stirred Photo-Bioreactor

Rayane Hijazi, Jihane Rahbany Mounsef, Hadi Y. Kanaan

Show (Yes/No): Comments:

10:52-11:05 Adaptive nonlinear control of floating wind turbines: new adaptation law and comparison

Mohammed Taleb, Alice Marie, Cheng Zhang, Mohamed Hamida, Pierre-Etienne Testelin, Franck Plestan

Show (Yes/No): Comments:

11:05-11:18 An Overview of Grid-Forming Control for Wind Turbine Converters

Yun Yu, Sanjay K. Chaudhary, Saeed Golestan, Gibran David Agundis Tinajero, Juan C. Vasquez, Josep M. Guerrero

Show (Yes/No): Comments:

Room K

Friday, 15 October 2021

10:00 - 11:20

S034 - SS Advanced Electrical Machines and Drives for Transportation Electrification

Chairs: Qingsong Wang, Xing Zhao

10:00-10:13 Lyapunov Function based Stability Analysis of Symmetric Induction Machine

Ramkrishan Maheshwari, Deepak Patil, Sanjeet Dwivedi, Thomas Ebel

Show (Yes/No): Comments:

10:13-10:26 Multiphysics Design and Modeling of Rotating Electrical Machines

Mostafa Ahmadi Darmani, Silvio Vaschetto, Andrea Cavagnino

Show (Yes/No): Comments:

10:26-10:39 An Eco-driving Strategy for an Electric Bus: IPMSM Drive-train

Robson Jele, Lesedi Masisi

Show (Yes/No): Comments:

10:39-10:52 Analysis and Control Development of IPM Traction Machines with Skewed Rotor using Unskewed Machine Model

Khoa Dang Hoang, Panagiostic Lazari, Kais Atallah

Show (Yes/No): Comments:

10:52-11:05 A multi-phase multilevel powertrain for full electric aircraft

Simone Tedeschini, Sobhan Mohamadian, Carlo Cecati

Show (Yes/No): Comments:

11:05-11:18 Internal Model Based Speed Estimation and Lyapunov Energy Function Based Control of a Surface Mount PMSM for Electric Vehicle Application

Vikram Roy Chowdhury, Sara Yazdani, Dwaipayan Barman, Md Multan Biswas, Dhiman Chowdhury

Show (Yes/No): Comments:

Room L

Friday, 15 October 2021

10:00 - 11:20

S351 - SS Futureproof Power Electronic Systems and Control for Residential Microgrids

Chairs: Dmitri Vinnikov, Enrique Romero-Cadaval

10:00-10:13 Performance Evaluation of the Universal Photovoltaic String Converter During the Operation in DC Microgrid Environment

Oleksandr Matiushkin, Dmitri Vinnikov, Oleksandr Husev

Show (Yes/No): Comments:

10:13-10:26 Energy Management of an Isolated Microgrid: A Practical Case

Ali Ghasemi-Marzbali, Roya Ahmadihangar, Sina Gouran Orimi, Mohammad Shafiei, Tobias Häring, Argo Rosin

Show (Yes/No): Comments:

10:26-10:39 Machine Learning Approach for Flexibility Characterisation of Residential Space Heating

Tobias Häring, Roya Ahmadihangar, Argo Rosin, Helmuth Biechl

Show (Yes/No): Comments:

10:39-10:52 New High-Gain Non-Inverting Buck-Boost Converter

Omar Abdel-Rahim, Andrii Chub, Dmitri Vinnikov, Andrei Blinov

Show (Yes/No): Comments:

10:52-11:05 Kalman-filter Based Maximum Power Point Tracking for a Single-Stage Grid-Connected Photovoltaic System

Ehsan Farrokhi, Hoda Ghoreishy, Roya Ahmadihangar, Argo Rosin

Show (Yes/No): Comments:

11:05-11:18 Current-Fed Partial Power Converter for Photovoltaic Applications in DC Microgrids

Tanel Jalakas, Roman Kosenko, Andrii Chub, Dmitri Vinnikov, Andrei Blinov

Show (Yes/No): Comments:

Room M

Friday, 15 October 2021

10:00 - 11:20

S422 - SS Internet of Things Technology for Industrial Smart City Applications

Chairs: Umair Mujtaba QURESHI, Gerhard Petrus HANCKE

10:00-10:13 OTP-Based Symmetric Group Key Establishment Scheme for IoT Networks

Sujash Naskar, Tingting Zhang, Gerhard Hancke, Mikael Gidlund

Show (Yes/No): Comments:

10:13-10:26 IoT Bicycle Sharing Service for Smart City Transport

Riaan Fourie, Musa Ndiaye, Gerhard Hancke

Show (Yes/No): Comments:

10:26-10:39 Empirical Analysis of LoRaWAN-based Adaptive Data Rate Algorithms

Charles Lehong, Bassey Isong, Francis Lugayizi, Adnan Abu-Mahfouz

Show (Yes/No): Comments:

10:39-10:52 A Lyapunov-based Real Time Energy Management System for Smart IoT Homes

Hailing Zhu, Khmaies Ouahada, Adnan Abu-Mahfouz

Show (Yes/No): Comments:

10:52-11:05 A Machine Learning approach to Intrusion Detection in Water Distribution Systems ☒
Literature Review

Ignituous Mboweni, Daniel Ramotsoela, Adnan Abu-Mahfouz

Show (Yes/No): Comments:

11:05-11:18 Augmented and Mixed Reality based Decision Support Tool for the Integrated Resource Plan

Devashen Govender, Jayendran Moodley, Reevana Balmahoon

Show (Yes/No): Comments:

Room N

Friday, 15 October 2021

10:00 - 11:20

S541 - SS Multiphase machines and their controls

Chairs: Mohan Aware, Atif Iqbal

10:00-10:13 **Sensorless controls of a 7-phase bi-harmonic Surface-mounted PM Machine**

Florent Becker, Franck Scuiller

Show (Yes/No): Comments:

10:13-10:26 **Hybrid Resonant Induction Machine for High-Speed Applications**

Ahmad Abdouallah, Yoshiyuki Komi, Rajesh Deodhar, Chiaki Umemura

Show (Yes/No): Comments:

10:26-10:39 **Availability analysis and quantification of electrical multiphase machines**

Louis Dassonville, Jean-Yves Gauthier, Xuefang Lin-Shi, Ali Makki, Alexandre Siccardi

Show (Yes/No): Comments:

10:39-10:52 **Modelling, Harmonic Compensation, and Current Sharing Between Winding Sets of Asymmetric Nine-Phase PMSM**

Sobhan Mohamadian, Carlo Cecati

Show (Yes/No): Comments:

10:52-11:05 **A Novel Spoke Type Interior PM Rotor Structure for a 9-Phase Unbalanced and Asymmetric Winding Motor**

Yucel Demir, Metin Aydin

Show (Yes/No): Comments:

11:05-11:18 **Virtual-Flux Finite Set Model Predictive Control of Dual-Three Phase IPMSM Drives**

Williem Agnihotri, Diego Valencia, Wesam Taha, Babak Nahid-Mobarakeh

Show (Yes/No): Comments:

Room 0

Friday, 15 October 2021

10:00 - 11:20

S721 - SS Solid State Transformer for Modern Power Grid

Chairs: Marco Liserre, Pradyumn Chaturvedi

10:00-10:13 **Potentials and Challenges of Multiwinding Transformer-Based DC-DC Converters for Solid-State Transformer**

Thiago Pereira, Felix Hoffmann, Rongwu Zhu, Marco Liserre

Show (Yes/No): Comments:

10:13-10:26 **Breadth-First Search Leakage Tolerant Commutation Method for Matrix Converters in Three-Phase Solid State Transformers**

Pedro Costa, Sónia Pinto, Fernando Silva

Show (Yes/No): Comments:

10:26-10:39 **New Operation Opportunities for the Solid State Transformer in Smart Homes: A Comprehensive Analysis**

Vitor Monteiro, Joao Lopes, Carlos Moreira, Joao Afonso

Show (Yes/No): Comments:

10:39-10:52 **Inverter and Battery Drive Cycle Efficiency Comparisons of Multilevel and Two-Level Traction Inverters for Battery Electric Vehicles**

Nina Sorokina, Julian Estaller, Anton Kersten

Show (Yes/No): Comments:

10:52-11:05 **Optimal Switching Sequence Model Predictive Control for Single-Phase Cascaded H-Bridge**

Pablo Jesús Gómez García, Luis Galván García-Pérez, Eduardo Galván Díez, Juan Manuel Carrasco Solís, Sergio Vázquez Pérez

Show (Yes/No): Comments:

11:05-11:18 **Half-Bridge Trans-Z-Source Inverter with High Boost Factor**

Hamed Mashinchi Maheri, Elias Shokati Asl, Ebrahim Babaei, Mehran Sabahi, Dmitri Vinnikov

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room C

Friday, 15 October 2021

10:20 - 10:50

ICELIE 2021 Keynote 1: Luis Gomes

47th Annual Conference of the IEEE Industrial Electronics Society

Room C

Friday, 15 October 2021

10:50 - 11:20

**ICELIE 2021 Keynote 2: Hamadou Saliah
Hassane**

Room A

Friday, 15 October 2021

11:30 - 12:50

T0415 - TT Electrical Machines and Drives

Chairs: Abhijit Choudhury, Hind Dirani

11:30-11:43 On the Influence of Air-gap Length Variations in Low-Speed Linear Three-phase Electrical Induction Motors

Rolando Caicedo Castro, Ernesto Ruppert Filho

Show (Yes/No): Comments:

11:43-11:56 Servo Actuators with Induction Motor using Predictive Current Control with Duty Cycle Optimization

Guilherme Alves Arantes, Stefan T. C. Alves dos Santos, Paulo R. Ubaldo Guazzelli, Manoel Luís de Aguiar

Show (Yes/No): Comments:

11:56-12:09 Switched Reluctance Motor Design for an EV Propulsion Application

Omar Zayed, Mohamed Omar, Mohamed Bakr, Mehdi Narimani, Ali Emadi, Berker Bilgin

Show (Yes/No): Comments:

12:09-12:22 Comprehensive Analysis of High-Speed Cascaded H-Bridge (CHB) Medium-Voltage Adjustable Speed Drives

Omar Zayed, Ahmed Elezab, Mehdi Narimani, George Cheng, Navid Zargari

Show (Yes/No): Comments:

12:22-12:35 Estimation of Electrical Parameters of the Single-, Double- and Triple-Cage Models of Induction Motors Using Manufacturer Data

Matheus Perin, Luis A. Pereira, Gabriel B. da Silveira, Dhamens M. S. Almansa, Iuri Marcelo, Luis G. Cavichioli

Show (Yes/No): Comments:

12:35-12:48 Analysis of Measurement Error Compensation of Stationary αβ Stator Currents done through Auto-Associative Neural Network

Thyago Estrabis, Matheus Pelzl, Raymundo Cordero, Walter Suemitsu, Luigi Galotto, Gabriel Gentil

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room B

Friday, 15 October 2021

11:30 - 12:50

T0213 - TT Control System, Robotics and Automation

Chairs: Ya-jun Pan, Gabor Sziebig

11:30-11:43 Electric Wheelchair Sensing and Control Algorithms for Users with Neurological Disorders

Norberto Scarone, Gustavo Monte, Ruben Bufanio, Damian Marasco, Ariel Agnello, Pablo Liscovsky

Show (Yes/No): Comments:

11:43-11:56 New Conditions for the Stability and Instability of Feedback Systems

L.H. Keel, S.P. Bhattacharyya

Show (Yes/No): Comments:

11:56-12:09 Stabilizing Set Based Design of Digital Controllers Based on Mikhailov's Criterion

M. A. Rahman, L. H. Keel, S. P. Bhattacharyya

Show (Yes/No): Comments:

12:09-12:22 Assistive Robotics: Robotic Trajectory Planning for Upper Extremity Rehabilitation in Patients with Hemiparesis

Sibyla Andreuchetti Vioto e Silva, Victor Barros Coch, Mateus Borges de Oliveira Pinto, Vinicius Menezes Oliveira

Show (Yes/No): Comments:

12:22-12:35 Distributed Adaptive Protocol for Asymptotic Consensus for a Networked Euler-Lagrange Systems with Uncertainty

Shafiqul Islam, Jorge Dias, Gurdial Arora, Anderson Sunda-Meya

Show (Yes/No): Comments:

12:35-12:48 Distributed Tracking Synchronization Protocol for a Networked of Leader-follower Unmanned Aerial Vehicles with Uncertainty

Shafiqul Islam, Jorge Dias, Anderson Sunda-Meya

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room C

Friday, 15 October 2021

11:30 - 12:50

ICE1 - ICELIE

Chairs: Martin Novak, David Checa

11:30-11:43 **Teaching Devices and Controls during the Pandemic**

Jie Sheng

Show (Yes/No): Comments:

11:43-11:56 **Effectiveness of multi-abstraction computing tools on promoting exploratory self-learning in engineering: a case study using a custom Real-Time Operating System for remote learning**

Paulo Garcia

Show (Yes/No): Comments:

11:56-12:09 **Virtual reality-based tool applied in the teaching and training of condition-based maintenance in induction motors**

David Checa, Andres Bustillo, Juan Jose Saucedo-Dorante, Roque A Osornio-Rios, Irving Armando Cruz-Albarran

Show (Yes/No): Comments:

12:09-12:22 **Delivery of online electronics and mechatronics labs during lockdowns**

Amal Jayawardena, Gayan Kahandawa, Lasitha Piyathilaka

Show (Yes/No): Comments:

12:22-12:35 **SensorQuad The Flying Sensor Platform for Teaching**

Martin Novak

Show (Yes/No): Comments:

12:35-12:48 **Educational experiences on virtual teaching of electric motors condition monitoring courses**

Jose Antonino-Daviu, Larisa Dunai

Show (Yes/No): Comments:

Room D

Friday, 15 October 2021

11:30 - 12:50

S052 - SS Advanced Sensing and Control for Intelligent Robots

Chairs: Yiyong Sun, Weiyang LIN

11:30-11:43 FF-GAT: Feature Fusion Using Graph Attention Networks

Ahmed N. Ahmed, Ali Anwar, Siegfried Mercelis, Steven Latre, Peter Hellinckx

Show (Yes/No): Comments:

11:43-11:56 Multiple-Pilot Collaboration for Advanced Remote Intervention using Reinforcement Learning

Ziwei Wang, Weibang Bai, Zhang Chen, Bo Xiao, Bin Liang, Yeatman Eric M.

Show (Yes/No): Comments:

11:56-12:09 Dynamic Kalman filter-based velocity tracker for Intelligent vehicle

Md Asif Khan, Tegveer Singh, Akramul Azim, Vivek Burhanpurkar, Rodolphe Perrin

Show (Yes/No): Comments:

12:09-12:22 Positioning Improvement for a Laser Scanning System using cSORPD control

Jose A. Nunez-Lopez, Lars Lindner, Oleg Sergiyenko, Julio C. Rodriguez-Quinonez, Wendy Flores-Fuentes, Paolo Mercorelli

Show (Yes/No): Comments:

12:22-12:35 Stiffness Estimation in Single Degree of Freedom Mechanisms using Regression

Aravind B. Balasubramanian, David P. Magee, David G. Taylor

Show (Yes/No): Comments:

12:35-12:48 Application of social constraints for dynamic navigation considering semantic annotations on geo-referenced maps

João Pedro Vilasboas, Marcelo Sampaio, Giovane Moreira, Adriel Souza, Jose Amado, Dennis Aranibar, Yudith Cardinale, Joao Soares

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room E

Friday, 15 October 2021

11:30 - 12:50

TUT05 - Ethics of Artificial Intelligence and Automation for Industrial Applications

Presenters

Daswin De Silva

Associate Professor

La Trobe University, Victoria, Australia

Donna Burnett

Ethics and Governance Lead

La Trobe University, Victoria, Australia

Damien Trentesaux

Research Center UMR CNRS 8201, Automation & Control Department

INSA Hauts-de-France State Engineering School

Stamatis Karnouskos

SAP, Germany

47th Annual Conference of the IEEE Industrial Electronics Society

Room F

Friday, 15 October 2021

11:30 - 12:50

**TUT06 - Transient stability of power
electronics-dominated power networks:
principle and application**

Presenters

Prof. Hua Geng

Professor

Tsinghua University, China

Dr. Xiuqiang He

Post-doc

Tsinghua University, China

47th Annual Conference of the IEEE Industrial Electronics Society

Room G

Friday, 15 October 2021

11:30 - 12:50

TUT07 - Electric Vehicles and Role of Power Electronics in Fast Charging-Impact on Grid, Challenges, Trends and Future

Presenters

P. Sanjeevikumar

CTiF Global Capsule, Aarhus University, Denmark

M. S. Bhaskar

Prince Sultan University (PSU), Saudi Arabia

Irfan Khan

Texas A&M University, TX, USA

47th Annual Conference of the IEEE Industrial Electronics Society

Room H

Friday, 15 October 2021

11:30 - 12:50

TUT08 - Extended Kalman Filters for State of Charge Estimation: Modelling, Implementation and Performance Monitoring

Presenter

Dr. Balakumar Balasingam

Assistant Professor

University of Windsor, Canada

47th Annual Conference of the IEEE Industrial Electronics Society

Room I

Friday, 15 October 2021

11:30 - 12:50

T0911 - TT Power Electronics & Energy Conversion

Chairs: Mohammad Sharifzadeh, Fadia Sebaaly

11:30-11:43 A Novel Step-down Three-Port Power Converter for Semi-Isolated Renewable and Hybrid Energy Storage System Applications

Sina Vahid, Pouya Zolfi, Ayman EL-Refaie

Show (Yes/No): Comments:

11:43-11:56 Voltage-Control Reference Estimation-based Quadratic Integration-exploited Model Predictive Current Control-driving Binary Capacitor Voltage Control-based MMC

Sanghun Choi, A. P. Meliopoulos

Show (Yes/No): Comments:

11:56-12:09 Optimal Common-Mode Voltage for Maximum Power Transfer of Grid-Tied PV CHB Inverters

Felipe Calderon, Alejandro Angulo, Pablo Acuna

Show (Yes/No): Comments:

12:09-12:22 A Multi-Input Solar Converter Interface for AC Microgrid Architecture

Pouya Zolfi, Sina Vahid, Ayman EL-Refaie

Show (Yes/No): Comments:

12:22-12:35 A Novel Non-Isolated Multi-Port DC-DC Converter for Hybrid Streetcar Application

Pouya Zolfi, Sina Vahid, Ayman EL-Refaie

Show (Yes/No): Comments:

12:35-12:48 PLL-based Clock Recovery Stability Analysis for Distributed Power Electronics Communication Networks with Sub-nanosecond Synchronization Accuracy

Yu Rong, Jun Wang, Zhiyu Shen, Boran Fan, Dushan Boroyevich, Rolando Burgos

Show (Yes/No): Comments:

Room J

Friday, 15 October 2021

11:30 - 12:50

T134 - TT TT Renewable Energy Systems and Smart Grid

Chairs: Bachir Kedjar, Subrata Banerjee

11:30-11:43 **Emulation of A Self-Excited Induction Generator Feeding Nonlinear Loads**

Yupeng Liu, Pragasen Pillay

Show (Yes/No): Comments:

11:43-11:56 **Low Cost PV Emulator Based on Programmable DC Power Supply and LabVIEW**

Loenel Estrada, Nimrod Vazquez, Julio Ortega, Héctor López, Claudia Hernández, Joaquin Vaquero

Show (Yes/No): Comments:

11:56-12:09 **Equivalent Circuit Parameter Extraction of PV Modules using Light Intensity Modulation Impedance Spectroscopy**

Sean Youngblood, Thomas Link, Adrian Gibson, Aaditya Sekar, Sung-Yeul Park

Show (Yes/No): Comments:

12:09-12:22 **Model Predictive Control Horizon Impact Over the Flexibility of a Net Zero Energy Building**

Juan Oviedo-Cepeda, Fatima Amara, Andreas Athienitis

Show (Yes/No): Comments:

12:22-12:35 **Power based Fault Detection Method for PV Arrays**

Harrison Illes, Yousef Mahmoud

Show (Yes/No): Comments:

12:35-12:48 **Modeling and Validation of Renewable Energy Sources in the OpenIPSL Modelica Library**

Fernando Fachini, Luigi Vanfretti, Marcelo de Castro, Tetiana Bogodorova, Giuseppe Laere

Show (Yes/No): Comments:

Room K

Friday, 15 October 2021

11:30 - 12:50

S033 - SS Advanced Electrical Machines and Drives for Transportation Electrification

Chairs: Qingsong Wang, Xing Zhao

11:30-11:43 A Flexible Model of PMSM to Design High Density Traction Systems for Electric Vehicles

Benoit Blanchard St-Jacques, Adib Ghadamyari, Ruisheng Shi, Pragasen Pillay

Show (Yes/No): Comments:

11:43-11:56 Winding Function-Based Stator Winding Layout Optimization of a Concentric Winding Squirrel Cage Induction Machine for Torque Enhancement

Buddhika De Silva Guruwatta Vidanalage, Mohammad Sedigh Toulabi, Wenlong Li, Anthony Lombardi, Jimi Tjong, Narayan. C Kar

Show (Yes/No): Comments:

11:56-12:09 Comparative study of losses in the AHB converter driving SRMs through Hysteresis and PI-PWM current controllers

Gustavo Xavier Prestes, Rodrigo Padilha Vieira

Show (Yes/No): Comments:

12:09-12:22 Finite Control Set Model Predictive Control for Switched Reluctance Motor Drives with Reduced Torque Tracking Error

Rasul Tarvirdilu-Asl, Shamsuddeen Nalakath, Diego F. Valencia, Berker Bilgin, Ali Emadi

Show (Yes/No): Comments:

12:22-12:35 A Novel Control Strategy to Mitigate the Parameter Saturation Problems in Synchronous Reluctance Machines

Anant Singh, Ramakrishnan Raja, Tomy Sebastian, Amina Shrestha, Md Sariful Islam, Kaushik Rajashekara

Show (Yes/No): Comments:

12:35-12:48 Torque Ripple Minimization Control Strategy in Synchronous Reluctance Machines

Anant Singh, Ramakrishnan Raja, Tomy Sebastian, Kaushik Rajashekara

Show (Yes/No): Comments:

Room L

Friday, 15 October 2021

11:30 - 12:50

S244 - SS DCDC Converters Circuits, Modeling, Control and Applications

Chairs: Mahajan Sagar Bhaskar, Sanjeevikumar Padmanaban

11:30-11:43 A Novel Expandable Diode-Capacitor Based DC-DC Converter with High Voltage Gains

Zahra Saadatizadeh, Xiaodong Liang

Show (Yes/No): Comments:

11:43-11:56 Dynamic Phasor-Based Modeling and Analysis of Dual-Loop Controlled DC-DC Converters

Udoka C. Nwaneto, Andrew M. Knight

Show (Yes/No): Comments:

11:56-12:09 Dynamic Modeling and Online Parameter Identification of a Coupled-Inductor-Based DC-DC Converter with Leakage Inductance Effect Consideration

Amir Farakhor, Huazhen Fang

Show (Yes/No): Comments:

12:09-12:22 ZVS/ZCS Three-Winding Coupled Inductor Based Non-isolated Bidirectional DC-DC Converter with Ripples Elimination at High Current Port and MPPT of Photovoltaic Systems

Zahra Saadatizadeh, Xiaodong Liang

Show (Yes/No): Comments:

12:22-12:35 Open Circuit Fault-tolerant Operation of a Modified Hybrid String Inverter/Rectifier Leg

Reza Emamalipour, John Lam

Show (Yes/No): Comments:

12:35-12:48 A Two-Phase Interleaved High-Voltage Gain DC-DC Converter with Coupled Inductor and Built-in Transformer for Photovoltaic Applications

Ramin Rahimi, Saeed Habibi, Mehdi Ferdowsi, Pourya Shamsi

Show (Yes/No): Comments:

Room M

Friday, 15 October 2021

11:30 - 12:50

S531 - SS Multilevel and High Power Density ACDC, DCAC, DCDC Converter Topology selection, Design, Control and Applications

Chairs: Abhijit Choudhury, Sandeep Anand

11:30-11:43 The Modular Multilevel Magnetic Stimulator: Energy-Efficiency, Pre-Charging and Overlap Protection

Benjamin Lohse, Florian Schwitzgebel, Fabian Neukirchinger, Anton Kersten, Manuel Kuder, Thomas Weyh

Show (Yes/No): Comments:

11:43-11:56 Design and Experimental Study of a GaN-based Three-Port Multilevel Inverter

Mohamed Tamasas Elrais, Issa Batarseh

Show (Yes/No): Comments:

11:56-12:09 A 70kW Three-Level Active Neutral Point Clamped Traction Inverter PCB Design for Optimizing the Stray Inductance and Thermal Performance

Yicheng Wang, Amirreza Poorfakhraei, Mehdi Narimani, Ali Emadi

Show (Yes/No): Comments:

12:09-12:22 Comparison of two modulated model predictive control strategies applied to a three-level three-phase voltage source inverter

Josue Andino, Paúl Ayala, Jacqueline Llanos, Diego ÑAuñAy, Wilmar Martinez, Diego Arcos-Aviles

Show (Yes/No): Comments:

12:22-12:35 An HVDC inverter based on the Asymmetric Alternate Arm Converter with thyristor valves

Diego Soto-Sanchez, Rubén Peña, Lorena Flores, Iván Andrade, Ramón Blasco-Gimenez

Show (Yes/No): Comments:

12:35-12:48 Back To Back Modular Multilevel Converter With Dynamic Hybrid Link For High Performance Drive

Jonathan Lillo, Felix Rojas, Dario Valdes, Javier Pereda, Roberto Cardenas

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room N

Friday, 15 October 2021

11:30 - 12:50

S661 - SS Recent Advances in Power Conversion Topologies and Control Algorithms for PV Systems under Normal and Abnormal Conditions

Chairs: Kawther Ezzeddine, Mahmoud Hamouda

11:30-11:43 Stability Analysis of Grid-connected PV Farms with High Switching Frequency Power Electronics

Mohammad Mahdavyfakhr, Isla Ziyat, Patrick Palmer

Show (Yes/No): Comments:

11:43-11:56 Topologies and Control Strategies of Partial Power DC/DC Converters for Photovoltaic Systems

Nicolas Weldt, Jose Espinoza, Daniel Sbarbaro, Luis Moran, Samir Kouro

Show (Yes/No): Comments:

11:56-12:09 Real-time Modeling of Offshore Wind Turbines for Transient Simulation and Studies

Thai-Thanh Nguyen, Tuyen Vu, Thomas Ortmeyer, George Stefopoulos, Greg Pedrick, Jason MacDowell

Show (Yes/No): Comments:

12:09-12:22 TVS Diode Coupled Gate Driver Circuit for Series Connected Power Devices used in Circuit Breaker Applications

Lakshmi Ravi, Jian Liu, Dong Dong, Rolando Burgos, Xiaoqing Song, Pietro Cairoli

Show (Yes/No): Comments:

12:22-12:35 Phase Change Material Cooling for Wide Band-Gap Switching Devices

Taosha Jiang, Xiaoqing Song, Utkarsh Raheja, Pietro Cairoli

Show (Yes/No): Comments:

12:35-12:48 An 800V/300 kW, 44 kW/L Air-Cooled SiC Power Electronics Building Block (PEBB)

Zibo Chen, Houshang Salimian, Chen Chen, Pengkun Liu, Ruiyang Yu, Alex Q. Huang

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room O

Friday, 15 October 2021

11:30 - 12:50

S222 - SS DC Grid Technologies and Applications DC Grid Technologies, Circuit Breakers, Protection and Control

Chairs: Satish Naik Banavath, Sreekanth Thamballa

11:30-11:43 Development of Current Limiting Ultra-Fast Solid-State Circuit Breakers

Zhongying Wang, E. M. Sankara Narayanan

Show (Yes/No): Comments:

11:43-11:56 A Dual-Bridge Hybrid DC Circuit Breaker

Hanwen Zhang, Gen Li, Yanbo Wang, Chuang Liu, Zhe Chen

Show (Yes/No): Comments:

11:56-12:09 Solid-State Circuit Breaker Component Simulation

Matthew Hughes, Nathan Weise

Show (Yes/No): Comments:

12:09-12:22 Sliding Mode Current Observer for a Bidirectional Dual Active Bridge Converter

Farzaneh Bagheri, Naki Guler, Hasan Komurcugil

Show (Yes/No): Comments:

12:22-12:35 Embedded Electrochemical Impedance Spectroscopy into Battery Management System

Desmon Simatupang, Abdulraouf Benshatti, Sung-Yeul Park

Show (Yes/No): Comments:

12:35-12:48 A Novel Modular, Reconfigurable Battery Energy Storage System Design

Amir Farakhor, Huazhen Fang

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room A

Saturday, 16 October 2021

07:00 - 08:20

T044 - TT Electrical Machines and Drives

Chairs: Qingbin Gao, Dan Xiao

07:00-07:13 Hybrid Ferrite Al-Ni-Co PM Assisted Synchronous Reluctance Motor for Air-Conditioner Compressors

Vegireddy Gowtham, Sashidhar Sampathirao

Show (Yes/No): Comments:

07:13-07:26 Deadbeat Predictive Direct Torque and Active Flux Control with Disturbance Observer

S M Showybul Shakib, Dan Xiao, Rukmi Dutta, Muhammed Rahman

Show (Yes/No): Comments:

07:26-07:39 Discrete Adaptive Full-Order Observer for Speed Sensorless Induction Motor Drives under Low PWM-to-Output Frequencies Ratio

Yong Yu, Wenbo Zhao, Bo Wang, Dianguo Xu

Show (Yes/No): Comments:

07:39-07:52 Implementation of PSO Algorithm for Speed Control of Brushless DC Motor

Suraj Kamde, Meghraj Morey

Show (Yes/No): Comments:

07:52-08:05 Performance Analysis and Fault Modelling of High Resistance Contact in Brushless DC Motor Drive

Annima Gupta, Kalaiselvi Jayaraman, Sugunakar Ravula Reddy

Show (Yes/No): Comments:

08:05-08:18 Position and Speed Estimation in Low Speed Range for IPMSM Based on Disturbance Observer

Ryosuke Nakatsuka, Takahiro Nozaki

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room B

Saturday, 16 October 2021

07:00 - 08:20

S021 - SS Advanced Control of GridConnected Converters for Distributed Generation and Power Quality

Chairs: Hadi Y. KANAAN, Mohammad SHARIFZADEH

07:00-07:13 Reduced DC Voltage Fed Grid Connected Transformer-less Shunt Compensator with AC-Side Impedance-Source Configuration

Guddy Satpathy, Burle Tulasi Rao, Dipankar De

Show (Yes/No): Comments:

07:13-07:26 Improved Quality of Compensation in Three-Level Shunt Active Power Filter Using Fractal Approach Based Current Hysteresis Controller

Siddharthsingh K. Chauhan, M. T. Shah, Dr. P. N. Tekwani

Show (Yes/No): Comments:

07:26-07:39 Design of IDA-PBC Controller for LCL-Filtered Grid-Connected Inverter

Min Huang, Fan Chen, Zhicheng Zhang, Weimin Wu, Zhilei Yao, Lixun Zhu

Show (Yes/No): Comments:

07:39-07:52 A Decentralized Adaptive SOC Balancing Strategy in VSG-based Islanded Power System

Meng Chen, Dao Zhou, Frede Blaabjerg

Show (Yes/No): Comments:

07:52-08:05 Adaptive Vector Control of Grid-tied VSC using Multilayer Perceptron-Recurrent Neural Network

Prabhat Ranjan Bana, Mohammad Amin

Show (Yes/No): Comments:

08:05-08:18 A time scale based energy management strategy for hybrid energy storage system in DC Microgrid

Mohamed Mroueh, Sarah Kassir, Moustapha Doumiati, Clovis Francis, Mohamed Machmoum

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room C

Saturday, 16 October 2021

07:00 - 08:20

ICE2 - ICELIE

Chairs: Truong Phung, Eiji Hiraki

07:00-07:13 Project-Based Learning Using Remote-Controlled Plane for Students in Mechatronic Course

Kou Miyamoto, Jinhua She

Show (Yes/No): Comments:

07:13-07:26 Development of an Experimental System for Remote Learning

Jinseok Woo, Tatsuya Kurihara, Yasuhiro Ohyama

Show (Yes/No): Comments:

07:26-07:39 Tiny Approaches to the Interactive online lectures under the COVID-19 pandemic

Eiji Hiraki, Masataka Ishihara, Kazuhiro Umetani

Show (Yes/No): Comments:

07:39-07:52 E-Learning challenges for electronics and mechatronics education during lockdowns

Amal Jayawardena, Gayan Kahandawa, Mark Petty

Show (Yes/No): Comments:

07:52-08:05 Cooperation between Theoretical and Practical Education through Power Electronics Circuits

Taichi Kawakami, Kazuhiro Umetani, Shigeo Morimoto

Show (Yes/No): Comments:

08:05-08:18 Synchronous learning and teaching in engineering education in response to COVID situations

Truong Phung

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room D

Saturday, 16 October 2021

07:00 - 08:20

T025 - TT Control System, Robotics and Automation

Chairs: Jingying Li, Yong He

07:00-07:13 AI Quadruped Robot Assistant for the Visually Impaired

Ajaykumaar Sivacoumare, Sheethal Maria S, Sarga Satheesh, Athul T, Manikandan V, Vinopraba T

Show (Yes/No): Comments:

07:13-07:26 Dynamic event-triggered consensus for discrete-time multi-agent systems

Mengshen Chen, Huaicheng Yan, Meng Wang, Zhichen Li

Show (Yes/No): Comments:

07:26-07:39 An improved moth-flame optimization algorithm based on fusion mechanism

Luchao Jiang, Kuangrong Hao, Xue-song Tang, Tong Wang, Xiaoyan Liu

Show (Yes/No): Comments:

07:39-07:52 Stability Analysis for Delayed Neural Networks Based on A Sufficient And Necessary Condition on Polynomial Inequalities

Fei Long, Yong He

Show (Yes/No): Comments:

07:52-08:05 Neural Network Control based Stabilization of Nonlinear Systems in Arbitrary Time

Vijay Kumar Singh, Parijat Prasun, Bhawana Singh, Shyam Kamal, Sandip Ghosh

Show (Yes/No): Comments:

08:05-08:18 An Investigation of G-L and R-L Based FOMRAC and Optimal FOPID on Unstable FOPTD Process

Deep Mukherjee, LLoyds Raja, Palash Kundu, Apurba Ghosh

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room E

Saturday, 16 October 2021

07:00 - 08:20

T024 - TT Control System, Robotics and Automation

Chairs: Yukang Cui, Xin Gong

07:00-07:13 Adaptive Super-Twisting Guidance Law with Extended State Observer

Sunil Kumar, Rahul Kumar Sharma, Shyam Kamal

Show (Yes/No): Comments:

07:13-07:26 A Utility Operation Model Design and Analysis of a Massage Robot

Shutong Li

Show (Yes/No): Comments:

07:26-07:39 Path Extraction for Autonomous Mobile Robot Using Skeletonization

Ryuki Higuchi, Yasutaka Fujimoto

Show (Yes/No): Comments:

07:39-07:52 Verification of Coaching effect by Instructor-like Assistance System Based on Model Predictive Constraint Satisfaction

Takuma Yamaguchi, Syota Matsubayashi, Tatsuya Suzuki, Kazuhisa Miwa

Show (Yes/No): Comments:

07:52-08:05 Robust Unknown Input Observer for Uncertain Non-Linear Systems using Sliding Modes with Fault Detection

Bhagyashri Gurjar, Bijnan Bandyopadhyay

Show (Yes/No): Comments:

08:05-08:18 Human-Assisted Grasping for Manipulation of Biological Cells

Jiuyun Li, Quang Minh Ta, Chao Liu, Chien Chern Cheah

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room F

Saturday, 16 October 2021

07:00 - 08:20

S122 - SS Advances in Electric Vehicle Charging and Next Generation Wireless Technology

Chairs: Rajesh Gupta, Rajasekar S.

07:00-07:13 Standalone Wind Energy Conversion System for EV Battery Charging and AC Residential Loads

Zubaida Khan, Rajesh Gupta

Show (Yes/No): Comments:

07:13-07:26 A Single-Ended Wireless V2H Using A New Phase Control Method Without Mutual Communication

Genki Kengaku, Hideki Omori, Masahito Tsuno, Toshimitsu Morizane, Hidehito Matayoshi

Show (Yes/No): Comments:

07:26-07:39 Standalone PV based Boost Derived Hybrid Converter for EV Charging Applications

Gunupuru Govinda Rao, Rajesh Gupta

Show (Yes/No): Comments:

07:39-07:52 Soft-Switching Based Integrated On-board Charger For Electric Vehicles

Jyoti Gupta, Rakesh Maurya, Sabha Raj Arya

Show (Yes/No): Comments:

07:52-08:05 Smart Vehicular System: Demand, Curiosity, Challenges, And Power Electronics Skills

M.S. Bhaskar, Dhafer Almkhles, P. Sanjeevikumar

Show (Yes/No): Comments:

08:05-08:18 A Modular Coil Design for High-Power Wireless EV Charging

Ali Ramezani, Mehdi Narimani

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room G

Saturday, 16 October 2021

07:00 - 08:20

T067 - TT Industrial Automation, Communication, Networking and Informatics

Chairs: Songlin Zhuang, Toshimasa Miyazaki²

07:00-07:13 A Genetic Algorithm based Scheduling Method for Automotive Ethernet

Hyeong-jun Kim, Kyoung-chang Lee, Suk Lee

Show (Yes/No): Comments:

07:13-07:26 Identification of Modules from Graphical Control Specification

Santonu Sarkar

Show (Yes/No): Comments:

07:26-07:39 Combinational Optimization Power (COP) - A Practical Power Budgeting Method for Many-cores

Xin Li, Zhi Li, Yaqi Ju, Huajie Lin, Wei Zhou

Show (Yes/No): Comments:

07:39-07:52 Context Aware Compression for Environmental Edge Devices using LPWAN.

Gilad Itzkovitch, Matthew Kuo

Show (Yes/No): Comments:

07:52-08:05 A novel distributed cooperative control approach for islanded microgrids with communication delays

Tao Yang, Xiaoqing Lu

Show (Yes/No): Comments:

08:05-08:18 Continues Sliding-Mode Control Of Robotic Manipulators With Uncertain Control Gain

Haofan Yu, Kemeng Wei, Dong Wang

Show (Yes/No): Comments:

Room H

Saturday, 16 October 2021

07:00 - 08:20

S641 - SS Predictive Maintenance Architectures and Applications for Industrial Systems

Chairs: Luis Lino Ferreira, Barış Bulut

07:00-07:13 LSTM-based Anomaly Detection for Railway Vehicle Air-conditioning Unit using Monitoring Data

Toshihide Yokouchi, Minoru Kondo

Show (Yes/No): Comments:

07:13-07:26 Smart Machine Box with Early Failure Detection for Automatic Tool Changer Subsystem of CNC Machine Tool in the Production Line

Shang-Chih Lin, Shun-Feng Su, Yennun Huang

Show (Yes/No): Comments:

07:26-07:39 Autonomous CPSoS for Cognitive Large Manufacturing Industries

Maria J. Santofimia, Felix J. Villanueva, Julian Caba, Jesus Fernandez-Bermejo, Xavier del Toro, Nirmalie Wiratunga, Juan R. Trapero, Ana Rubio, Claudio Salvadori, Juan C. Lopez

Show (Yes/No): Comments:

07:39-07:52 Flexible Architecture for Data-Driven Predictive Maintenance with Support for Offline and Online Machine Learning Techniques

Alda Canito, Marta Fernandes, João Mourinho, Serkan Tosun, Kamer Kaya, Ayşe Egül Turupcu, Angel Lagares, Hüseyin Karabulut, Goreti Marreiros

Show (Yes/No): Comments:

07:52-08:05 Predictive Maintenance of home appliances: Estimation of Washing Machine Parameters

Luis Ferreira, André Oliveira, Nuno Teixeira, Jorge Landeck, Baris Bulut, Nuno Morgado, Orlando Sousa

Show (Yes/No): Comments:

08:05-08:18 Automated Pipe Inspection Based on Image Processing

Veysel Yüksel, Yusuf Engin Tetik, Mehmet Yılmaz, Ömer Cahit Özdemir

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room I

Saturday, 16 October 2021

07:00 - 08:20

T094 - TT Power Electronics & Energy Conversion

Chairs: Jinxin Liu, Yangang Wang

07:00-07:13 An Improved Voltage Control Strategy Based on Finite-Time Theory for Virtual Synchronous Generator

Wenlu Cai, Chunshui Du, Qiguo Shi, Guangwei Wang, Aiping Wang, Dezheng Chui

Show (Yes/No): Comments:

07:13-07:26 An Improved Adaptive Inertia and Damping Combination Control of Virtual Synchronous Generator

Qiguo Shi, Chunshui Du, Yongchao Sun, Wenlu Cai, Aiping Wang, Dezheng Chui

Show (Yes/No): Comments:

07:26-07:39 Parasitic Inductance Design for Preventing Oscillatory False Triggering of Parallel-Connected GaN-FETs

Yusuke Hatakenaka, Kazuhiro Umetani, Masataka Ishihara, Eiji Hiraki, Hiroshi Tadano

Show (Yes/No): Comments:

07:39-07:52 Substrate Solder Crack Evaluation and Modelling of Power Module under Passive Cycling

Zhongxu Wang, Yangang Wang, Lee Coulbeck, Xiang Li, Wei Gong

Show (Yes/No): Comments:

07:52-08:05 Discrete-Model Based Analysis of Flyback Converter Circuit

Bilal Canol, Ali Bekir Yıldız

Show (Yes/No): Comments:

08:05-08:18 A New PWM Control based on an Optimized Zero Sequence Component injection: Application in a Two-Level Inverter.

Adrien Bourgeade, Malek Ghanes, Maurice Fadel, Abdelkader Bouarfa, Jean-Pierre Barbot

Show (Yes/No): Comments:

Room J

Saturday, 16 October 2021

07:00 - 08:20

S701 - SS Resilient, Sustainable, and Secure Inverter Intensive Power Grids

Chairs: Xiaonan Lu, Bo Chen

07:00-07:13 An PLL-Equivalent Model for Low Frequency Dynamic Analysis of Weak-Grid connected VSC

Xialin Li, Chen Zhang, Lin Zhu, Pengfei Li, Zhi Wang, Li Guo

Show (Yes/No): Comments:

07:13-07:26 Reduced-order Modeling and Dynamic Stability Analysis of DC Systems Connected to Weak Grids in DC Voltage Control Timescale

Pengfei Li, Li Guo, Xialin Li, Chen Zhang, Lin Zhu, Ye Zhang

Show (Yes/No): Comments:

07:26-07:39 Simulating and Evaluating Privacy Issues in Distributed Microgrids: A Cyber-Physical Co-Simulation Platform

Nianzhi Hang, Feng Ye, Zheyuan Cheng, Xianghui Cao, Mo-Yuen Chow

Show (Yes/No): Comments:

07:39-07:52 Model Reduction for Inverter-Dominated Networked Microgrids with Grid-Forming Inverters

Yuhua Du, Xiaonan Lu, Dongbo Zhao

Show (Yes/No): Comments:

07:52-08:05 Photovoltaic (PV) System Levelized Cost of Energy (LCOE) Evaluation with Grid Support Function Valuation and Service Lifetime Estimation

Shijia Zhao, Yuxi Men, Xiaonan Lu, Dongbo Zhao, Alex Huang

Show (Yes/No): Comments:

08:05-08:18 Comparative Small-Signal Stability Analysis of Grid-Forming and Grid-Following Inverters in Low-Inertia Power Systems

Lizhi Ding, Xiaonan Lu, Jin Tan

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room K

Saturday, 16 October 2021

07:00 - 08:20

S511 - SS Modular Power Converters Topologies, Control and Applications

Chairs: Deepak Ronanki, Apparao Dekka

07:00-07:13 A Junction Temperature Balance Control Among Sub-Modules for Modular Multilevel Converter

Hongqi Ding, Fujun Ma, Rong Han, Liheng Lin, Qianming Xu, Yulin Kuang

Show (Yes/No): Comments:

07:13-07:26 Space Vector Modulated Direct Torque Control of an Open-end Winding Induction Motor Drive with Three-Level Inversion

V. Praveenkumar Kunisetti, Vinay Kumar Thippiripati

Show (Yes/No): Comments:

07:26-07:39 Selective Voltage Vector Based Predictive Torque Control of an Open-end Winding Induction Motor Drive with Four-Level Inversion for EVs

Kunisetti V. Praveenkumar

Show (Yes/No): Comments:

07:39-07:52 Modified Multi-output Asymmetric Multi-level Inverter

Bhabhor Mehulkumar, Baria Virat, Jammala Venkataramanaiah

Show (Yes/No): Comments:

07:52-08:05 Fault Limiting Circuit based protection for DC and AC Faults in HB-MMC HVDC Systems

Sukrashis Sarkar, Anandarup Das

Show (Yes/No): Comments:

08:05-08:18 Short Endurance Drive Cycle Analysis of MMC Based Absolute Battery Operated Harbor Vessel

Vidyasagar Tummakuri, Thanga Raj Chelliah, Deepak Ronanki

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room L

Saturday, 16 October 2021

07:00 - 08:20

S521 - SS Multilevel Converters Topologies, Control Strategies and Protection

Chairs: Josep Pou, Sreekanth Thamballa

07:00-07:13 Suppression of lower order harmonics by Switched-Capacitive filtering using Polygonal Space Vector Structures and Capacitor Sizing for Induction Motor Drive Applications

Rahul Dewani, Gopakumar K., Umanand L., Subhashish Bhattacharya

Show (Yes/No): Comments:

07:13-07:26 Suppression of Lower Order Harmonics using a 21-Concentric 42-sided polygonal Space Vector Structure for Induction Motor Drive Applications

Rahul Dewani, Gopakumar K., Umanand L., Leopoldo G. Franquelo, Kaushik Rajashekara

Show (Yes/No): Comments:

07:26-07:39 Battery Fault Tolerance of Modular Multilevel Converter-Based Battery Energy Storage Systems with Redundant Submodules

Gaowen Liang, Glen G. Farivar, Naga Brahmendra Yadav Gorla, Ezequiel Rodriguez Ramos, Josep Pou

Show (Yes/No): Comments:

07:39-07:52 Effect of Zero-Sequence Voltage on the Maximum Average Neutral-Point Current Limit of Neutral-Point-Clamped Converters

Neha Beniwal, Glen G. Farivar, Salvador Ceballos, Naga Brahmendra Yadav Gorla, Josep Pou

Show (Yes/No): Comments:

07:52-08:05 A MMC Topology with AC Short-Circuit Fault Ride-Through Capability and its Control Strategies

Chenghao Zhang, Song Tang, Feng Jiang, Min Chen

Show (Yes/No): Comments:

08:05-08:18 A 24-sided Polygonal Voltage Space Vector Structure for IM drive with Open end winding Configuration

Prashant Surana, R Rakesh, K Gopakumar, L Umanand

Show (Yes/No): Comments:

Room M

Saturday, 16 October 2021

07:00 - 08:20

S691 - SS Reliable and Stable Operation of Wind Energy Generation Systems

Chairs: Chao Wu, Meng Huang

07:00-07:13 Transient Stability Enhancement of Inverter-based Resources with Virtual Synchronous Generator on Active Power Control Loop

Kongyuan Li, Peng Cheng, Limin Jia

Show (Yes/No): Comments:

07:13-07:26 Impedance Analysis of DFIG System based on DPC without PLL at Fundamental Frequency

Bin Hu, Heng Nian, Meng Li, Hao Tong, Jun Yang, Hongyu Zhang

Show (Yes/No): Comments:

07:26-07:39 Comparison of DC-link Voltage Control Schemes on Grid-side and Machine-side for Type-4 Wind Generation System Under Weak Grid

Liang Huang, Chao Wu, Dao Zhou, Frede Blaabjerg

Show (Yes/No): Comments:

07:39-07:52 Grid-Following and Grid-Forming Control in Power Electronic Based Power Systems: A Comparative Study

Xian Gao, Dao Zhou, Amjad Anvari-Moghaddam, Frede Blaabjerg

Show (Yes/No): Comments:

07:52-08:05 Active Damping Control Strategies for WEC with VSM considering DC-Link Dynamics

Max Rose, Katharina Günther, Constantinos Sourkounis

Show (Yes/No): Comments:

08:05-08:18 Novel control compatible distance protection in the outgoing line of type-4 wind power plants

Kaiqi Ma, Zhe Chen, Claus Leth Bak

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room N

Saturday, 16 October 2021

07:00 - 08:20

S181 - SS An Interdisciplinary Approaches and Advances in Grid Interfaced Transportation System

Chairs: Anup Kumar Panda, Man Mohan Garg

07:00-07:13 An Antlion Optimization technique based Hybrid Series APF for Harmonic Mitigation

Arjun Baliyan, Nitisha Shrivastava, Sayed Javed Alam

Show (Yes/No): Comments:

07:13-07:26 Normalized Gaussian Kernel LMS controlled Grid interactive PV based EV Charging Station

Prerana Mohapatra, Venkata Ramana Naik N, Anup Kumar Panda, Nishit Tiwary

Show (Yes/No): Comments:

07:26-07:39 Design and Hardware Realization of an Asymmetrical Fuzzy Logic-based MPPT Control for Photovoltaic Applications

Claude Bertin Nzoundja Fapi, Patrice Wira, Martin Kamta, Bruno Colicchio

Show (Yes/No): Comments:

07:39-07:52 A Cascaded Pseudo Open Loop Synchronization Technique for Grid Connected Application

Ahmed Safa, Zakaria Chedjara, Abdelmadjid Gouichiche, Youcef Messlem, El Madjid Berkouk, Patrice Wira

Show (Yes/No): Comments:

07:52-08:05 Distribution Factor Assessment for PEVs Charging Stations with V2G Capability in Power Systems

Nasim Rashidirad, Hanane Dagdougui

Show (Yes/No): Comments:

08:05-08:18 Application of VSG Control in Microgrids with Unknown Frequency Dynamic of Diesel Generator

Xialin Li, Xunyang Wang, Li Guo, Rui Liu, Hongda Wang, Jianchun Xing

Show (Yes/No): Comments:

Room O

Saturday, 16 October 2021

07:00 - 08:20

S231 - SS DCDC Converter Topologies and their Intelligent Control for Energy Storage Systems

Chairs: Varsha A. Shah, Sachin Jain

07:00-07:13 Component Based and Machine Learning Aided Optimal Filter Design for Full-Bridge Current Doubler Rectifier

GuiHua Liu, YanBo Chen, Yuan Gao, JiaNing Zhu, BoXin Wang, Tao Yang

Show (Yes/No): Comments:

07:13-07:26 Exploring various topology using DC-DC converter in hybrid energy storage system for electric vehicles

Vima Mali, Brijesh Tripathi

Show (Yes/No): Comments:

07:26-07:39 Ultracapacitor Based Voltage Lift Converter with PID Controller as a Function of Current

Ujjval B Vyas, Varsha A Shah, Athul Vijay P K

Show (Yes/No): Comments:

07:39-07:52 Analysis on Resonant Converter for Ultracapacitor Charging by Considering Terminal Voltage of Ultracapacitor as State Space Variable

Athul Vijay P K, Varsha A Shah, Ujjval B Vyas

Show (Yes/No): Comments:

07:52-08:05 Analyses and Design of a High Power Bidirectional 48V-12V DCDC Converter System for Electric Vehicle Application

Hai Liu, Lenian He

Show (Yes/No): Comments:

08:05-08:18 A Comparative Study of Energy Storage Systems based on Modular Multilevel Converters

Fernando Davalos Hernandez, Federico Ibanez, Rahim Samanbakhsh, Ramiro Velazquez

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room P

Saturday, 16 October 2021

07:00 - 08:20

S611 - SS Power Electronics for Energy Access and OffGrid Systems

Chairs: Venkatesh Boddapati, Ramjee Prasad

07:00-07:13 Series Arc Fault Detection in Low Voltage Distribution System with Signal Processing and Machine Learning Approach

Arvind Kumar Gupta, Aurobinda Routray, VN Achutha Naikan

Show (Yes/No): Comments:

07:13-07:26 A Novel algorithm for Electric Vehicle charging scheduling with Renewable Energy Source

Nethravathi S, Venkatakirthiga M

Show (Yes/No): Comments:

07:26-07:39 Active Distribution System Protection Using High-frequency component analysis by DWT-MRA

Jnaneswar Kollu, Ankur Singh Rana, Mini Shaji Thomas

Show (Yes/No): Comments:

07:39-07:52 A bidirectional converter control design to improve the performance of isolated microgrid

Hercules Oliveira, Luiz Ribeiro, Jose De Matos, Joao Caracas, Guilherme Farias, Osvaldo Saavedra, Lucas Pinheiro

Show (Yes/No): Comments:

07:52-08:05 A Novel Four-port LLC Converter for Dual PV and Battery Integration

Sumana Ghosh, Md Safayatullah, Mohamed Elrais, Issa Batarseh

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room Q

Saturday, 16 October 2021

07:00 - 08:20

S111 - SS Advances in DataDriven Process Monitoring and Control for Complex Industrial Systems

Chairs: Hao Luo, Zhiwen Chen

07:00-07:13 Incident early warning based on sparse autoencoder and decision fusion for drilling process

Zheng Zhang, Xuzhi Lai, Min Wu, Sheng Du

Show (Yes/No): Comments:

07:13-07:26 Fruit Maturity Recognition from Agricultural, Market and Automation Perspectives

Koteswar Rao Jerripothula, Sarvesh Kumar Shukla, Samyak Jain, Shudhanshu Singh

Show (Yes/No): Comments:

07:26-07:39 Data-driven Wasserstein distributionally robust optimization for refinery planning under uncertainty

Jinmin Zhao, Liang Zhao, Wangli He

Show (Yes/No): Comments:

07:39-07:52 Data-driven Quality Estimation for Production Processes with Lot-level Quality Control

Naveen John Punnoose, Prahlad Vadakkepat, Ai Poh Loh, Edward Yapp Kien Yee

Show (Yes/No): Comments:

07:52-08:05 Design of a Database-Driven Nonlinear Generalized Predictive Controller

Zhe Guan, Tomofumi Okada, Toru Yamamoto

Show (Yes/No): Comments:

08:05-08:18 Quality monitoring for injection moulding process using semi-supervised learning approach

Nam Doan, Tung Tran Van, Edward Yapp Kien Yee

Show (Yes/No): Comments:

Room R

Saturday, 16 October 2021

07:00 - 08:20

S462 - SS Model Predictive Control for Power Converters

Chairs: Fadia SEBAALY, Jose Rodriguez

07:00-07:13 Design of a Database-Driven Model Predictive Control System for Excavator-Environment Interaction

Tomofumi Okada, Toru Yamamoto, Takayuki Doi, Kazushige Koiwai, Koji Yamashita

Show (Yes/No): Comments:

07:13-07:26 Model Predictive Current Control of PMSM Drives for Achieving both Fast Transient Response and Ripple Suppression

Hiroaki Kawai, Julien Cordier, Ralph Kennel, Shinji Doki

Show (Yes/No): Comments:

07:26-07:39 Event-Triggered Continuous Control Set-Model Predictive Control for Three-Phase Power Converters

Hao Lin, Jianxing Liu, Xiaoning Shen, Yunfei Yin, Jose Ignacio Leon, Leopoldo Garcia Franquelo, Ligang Wu

Show (Yes/No): Comments:

07:39-07:52 Switched-Capacitor Two-Output Multilevel Inverter (SCMLI) with Common Ground for Photovoltaic Applications

Zhiyuan Xu, Jia Yao, Adrian Ioinovici

Show (Yes/No): Comments:

07:52-08:05 Automatic Generation of Attack Strategy for Multiple Vulnerabilities Based on Domain Knowledge Graph

Xiaosheng Chen, Wendi Shen, Genke Yang

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Plenary & Keynote

Saturday, 16 October 2021

08:30 - 09:30

Special lecture by IES TC Cluster-3

47th Annual Conference of the IEEE Industrial Electronics Society

Room C

Saturday, 16 October 2021

10:00 - 11:10

ICE3 - ICELIE

Chairs: Primož Podržaj, Salma Alarefi

10:00-10:13 **Student Journey Map (SJM): a scenario-based approach to professionalizing digital education**

Emmanuel Fragniere, Camille Pellaton, Randolph Ramseyer, Maria Sokhn, Charline Unternährer

Show (Yes/No): Comments:

10:13-10:26 **E-Teaching High Accuracy Motion Control Techniques in Covid-19 time**

Roberto Oboe, Giulia Michieletto

Show (Yes/No): Comments:

10:26-10:39 **Blended Learning for Remote Software Simulation Laboratory of a Solar Power System**

Salma M S Al Arefi

Show (Yes/No): Comments:

10:39-10:52 **An Erasmus+ project: Interactive Course for Control Theory (ICCT)**

Primož Podržaj, Miha Finčgar, ArPirnar, Sandi Ljubič, Michele Lanzetta, Lorenzo Pollini, Pietro Venturini, Bertalan Pizag, Peter Korondi, Csaba Budai

Show (Yes/No): Comments:

10:52-11:05 **Internet Technologies in Academic Remote Teaching: Case Study of Numerical Methods**

Jerzy Baranowski, Waldemar Bauer, Katarzyna Grobler-Dębska

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room A

Saturday, 16 October 2021

10:00 - 11:20

T049 - TT Electrical Machines and Drives

Chairs: Qingsong Wang, Xing Zhao

10:00-10:13 Induction Motor Parameters Identification in Noisy Environment

Jean Sawma, Flavia Khatounian, Eric Monmasson, Ragi Ghosn

Show (Yes/No): Comments:

10:13-10:26 Detection of balls bearing Incipient defect by current analysis

Mahamad Hassan Gaditto, Vocassin Bruno, Yazidi Amine, Henao Humberto, Segard Eric

Show (Yes/No): Comments:

10:26-10:39 Investigation of Resistivity Impact on AC Losses in Hairpin Conductors

Marco Pastura, Stefano Nuzzo, Davide Barater, Giovanni Franceschini

Show (Yes/No): Comments:

10:39-10:52 Sustainability Aspects of Electrical Machines For E-Mobility Applications Part I: A Design with Reduced Rare-earth Elements

Bharadwaj Raghuraman, Shafiqh Nategh, Nikitas Sidiropoulos, Linnea Petersson, Aldo Boglietti

Show (Yes/No): Comments:

10:52-11:05 Detection of Interturn Short-Circuits of E-Bike BLDC motor

Zdenek Frank, Jan Laksar

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room B

Saturday, 16 October 2021

10:00 - 11:20

S022 - SS Advanced Control of GridConnected Converters for Distributed Generation and Power Quality

Chairs: Hadi Y. KANAAN, Hasan KOMURCUGIL

10:00-10:13 **Stability Enhancement for Single-Loop Voltage Controlled Voltage-Source Converters with LC-Filter**

Ziqi Zhou, Sante Pugliese, Marco Liserre

Show (Yes/No): Comments:

10:13-10:26 **Single-stage PV System With Multi-Objective Predictive Control Approach**

Simone Vanti, Prabhat Ranjan Bana, Mohammad Amin

Show (Yes/No): Comments:

10:26-10:39 **Model-Free Predictive Control of Grid Connected Converters with No System Parameters**

Alireza Jabbarnejad, Sadegh Vaez-Zadeh, Jose Rodriguez

Show (Yes/No): Comments:

10:39-10:52 **Set Invariance Based Localization of Kalman Filter Estimation Error in Automatic Generation Control**

Dorijan Leko, Mario Vask

Show (Yes/No): Comments:

10:52-11:05 **Avoiding Circulating Current via Current-Limiting Control in AC Microgrids with Parallel Three-Phase Inverters**

Seyfullah Dedeoglu, George C. Konstantopoulos

Show (Yes/No): Comments:

11:05-11:18 **A New Arm Voltage Control Scheme for a Single Phase Modular Multilevel Converter**

Anthony Abdayem, Jean Sawma, Flavia Khatounian, Eric Monmasson, Ragi Ghosn

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room D

Saturday, 16 October 2021

10:00 - 11:20

INTEROP4 - IEEE 1451 Centers of Expertise (CoE)

P1451.001-2017, Gustavo Monte
P1451.002, Antonio Espirito-Santo
P1451.1.5, Jun Wu
P1451.1.6, Hiroaki Nishi
OPEN DISCUSSIONS
Chairs: Victor Huang, Kang Lee

Room E

Saturday, 16 October 2021

10:00 - 11:20

T029 - TT Control System, Robotics and Automation

Chairs: Hao Luo, Zhiwen Chen

10:00-10:13 Towards Modeling and Control of a Crane-Collaboration for the Automated Assembly of Timber Structures

Mark Burkhardt, Oliver Sawodny

Show (Yes/No): Comments:

10:13-10:26 Adaptive Backstepping Control of Antilock Braking System Based on LuGre Model

Jamal El-bakkouri, Hamid Ouadi, Abdallah Saad

Show (Yes/No): Comments:

10:26-10:39 An International Case Study on Control Software Development in Large-Scale Plant Manufacturing Companies of One Industrial Sector at Different Locations

Birgit Vogel-Heuser, Eva-Maria Neumann, Alois Zoitl, Antonio M. Gutierrez Fernandez, Rick Rabiser, Hafiyyan Sayyid Fadhlillah

Show (Yes/No): Comments:

10:39-10:52 Smooth Visual-Coverage Path Planning for Escort Missions using UAVs

Kaouther Moussa, Hilton Tnunay, Ahmad Hably, Nicolas Marchand

Show (Yes/No): Comments:

10:52-11:05 Predictive control of PMSM using improved model of the drive

Ondrej Suchy, Stepan Janous, Jakub Talla, Zdenek Peroutka

Show (Yes/No): Comments:

11:05-11:18 Mobile robot localization in industrial environments using a ring of cameras and ArUco markers

Sara Roos-Hoefgeest Toribio, Ignacio Álvarez García, Rafael C. González de Los Reyes

Show (Yes/No): Comments:

Room F

Saturday, 16 October 2021

10:00 - 11:20

T0210 - TT Control System, Robotics and Automation

Chairs: Yunsong Xu, Okyay Kaynak

10:00-10:13 **Data-driven framework to improve collaborative human-robot flexible manufacturing applications**

Fiorella Sibona, Marina Indri

Show (Yes/No): Comments:

10:13-10:26 **A Task-based Method for Underwater Drones Waterproof Thrusters Power Computation**

Henrique Fagundes Gasparoto, Olivier Chocron, Jean-Matthieu Bourgeot, Mohamed Benbouzid, Pablo Siqueira Meirelles

Show (Yes/No): Comments:

10:26-10:39 **Implementation of an autonomous ROS-Based Mobile Robot with Ai depth estimation**

João Faria, António Moreira

Show (Yes/No): Comments:

10:39-10:52 **Non-Invasive Closed-Loop System Identification of an Active Rectifier**

Raoul Laribi, Darian Andreas Schaab, Yijun Lu, Alexander Sauer

Show (Yes/No): Comments:

10:52-11:05 **Disturbance Observer Based Fault Tolerant Control of a Quadrotor Helicopter**

Yarkin Hocaoglu, Mehmet Emin Mumcuoglu, Mustafa Unel

Show (Yes/No): Comments:

11:05-11:18 **Robust two-degree-of freedom control optimally balancing feedforward plant inversion and feedforward closed loop inversion**

Valentina Orsini, Leopoldo Jetto

Show (Yes/No): Comments:

Room G

Saturday, 16 October 2021

10:00 - 11:20

S112 - SS Advances in DataDriven Process Monitoring and Control for Complex Industrial Systems

Chairs: Hao Luo, Yunsong Xu

10:00-10:13 **Generating Pool of Classifiers with Hyper-Parameter Optimization for Ensemble**
Qiushi Wang, Hian Leng Chan

Show (Yes/No): Comments:

10:13-10:26 **Vibration Analysis of a Wind Turbine Gearbox for Off-cloud Health Monitoring through Neuromorphic-computing**

Pouya Soltani Zarrin, Cristian Martin, Peter Langendoerfer, Christian Wenger, Manuel Diaz

Show (Yes/No): Comments:

10:26-10:39 **A Data-Driven Method for Paint Curing Quality Control in Automotive Industry**
Gökalp Ayaz, Uğur ÜResin

Show (Yes/No): Comments:

10:39-10:52 **Performance Evaluation of a De-oiling Process Controlled by PID, H∞ and MPC**

Stefan Jespersen, Zhenyu Yang

Show (Yes/No): Comments:

10:52-11:05 **Optimal robotic controller based on signals and data information with kinematic redundancy**

Yair Casas, Chidentree Treesatayapun

Show (Yes/No): Comments:

11:05-11:18 **A Proposal to Mitigate Similarity Bias for the Paderborn Bearing Data Set**
Lucio Venturim, Francisco de Assis Boldt

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room H

Saturday, 16 October 2021

10:00 - 11:20

S281 - SS Efficient and Sustainable LED Lighting Systems

Chairs: Fernando Bento, Pascal Dupuis

10:00-10:13 **Cost Efficient Power Electronic Led Headlamp for automotive**

Lalit Ahuja, Anshul Tyagi, Anagha Titpude, Arti Tare

Show (Yes/No): Comments:

10:13-10:26 **A Single-Inductor Multiple Current Output RGB LED Driver Architecture with Hybrid Dimming for Large-Scale Facilities**

Joao Dinis, Fernando Bento, Antonio J. Marques Cardoso

Show (Yes/No): Comments:

10:26-10:39 **Current crowding as a major cause for InGaN LED degradation at extreme high current density**

Nicola Trivellin, Matteo Buffolo, Carlo De Santi, Enrico Zanoni, Gaudenzio Meneghesso, Matteo Meneghini

Show (Yes/No): Comments:

10:39-10:52 **High Efficiency Bus Provider for VLC Applications Based an Asymmetrical Half Bridge Converter with a Resonant DCX Auxiliary Output**

Theyllor Oliveira, Manuel Arias, Diego Lamar, Daniel Aller, Abraham López

Show (Yes/No): Comments:

10:52-11:05 **Traffic Intensity Adaptive Street Lighting Control**

Ansis Avotins, Olegs Tetervenoks, Leslie Robert Adrian, Aivars Severdaks

Show (Yes/No): Comments:

11:05-11:18 **Sensor Calibration for LED Supplemental Lighting in Horticulture**

Afagh Mohagheghi, Mehrdad Moallem

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room I

Saturday, 16 October 2021

10:00 - 11:20

T098 - TT Power Electronics & Energy Conversion

Chairs: Samir Kouro, Sertac Bayhan

10:00-10:13 A Novel Boost-Based Quasi Resonant DC-DC Converter with Low Component Count for Stand-Alone PV Applications

Pouyan Pourhadi Abkenar, Alinaghi Marzoughi, Sadegh Vaez-Zadeh, Hossein Iman-Eini, Mohammad Hamed Samimi, Jose Rodriguez

Show (Yes/No): Comments:

10:13-10:26 Predictive Voltage Control for Grid-Forming Power Converters with Virtual Output Impedance

Johnny Chhor, Benedikt Lammersmann

Show (Yes/No): Comments:

10:26-10:39 Multilevel Inverter with a New Modulation Method Applied to Solid-State Transformer in PV Applications

Hesamodin Abdoli, Javad Shokrollahi Moghani, Sadegh Vaez-Zadeh, Amir Babaki, Alireza Jafari Natanzi, Jose Rodriguez

Show (Yes/No): Comments:

10:39-10:52 Bipolar Degradation monitoring of 4H-SiC MOSFET Power Devices by Electroluminescence Measurements

Amel Lachichi, Phil Mawby

Show (Yes/No): Comments:

10:52-11:05 Performance Evaluation of Multi-Step Exhaustive Search Finite Control Set Model Predictive Control for Multi-Level Voltage Source Converter

Benedikt Lammersmann, Johnny Chhor, Constantinos Sourkounis

Show (Yes/No): Comments:

11:05-11:18 A Novel asymmetric multilevel inverter topology based on PEC9 using a hybrid PWM modulation

Mohammadali Ahmadijokani, Mohammad Sharifzadeh, Shayan Pourfarokh, Majid Mehrasa, Kamal Al-Haddad

Show (Yes/No): Comments:

Room J

Saturday, 16 October 2021

10:00 - 11:20

T133 - TT TT Renewable Energy Systems and Smart Grid

Chairs: Fernando Lezama, Mo-Yuen Chow

10:00-10:13 Imbalance Reduction by Risk Filter for Operating Flexible DER under Forecast Uncertainties

Marvin Schlageter, Juri Backes, Wolfgang Renz

Show (Yes/No): Comments:

10:13-10:26 Probabilistic DAM price forecasting using a combined Quantile Regression Deep Neural Network with less-crossing quantiles

Ties van der Heijden, Peter Palensky, Edo Abraham

Show (Yes/No): Comments:

10:26-10:39 Vertical Axis Wind Turbine Performance Based on Rotor Blade Radius

Edvins Mineikis, Janis Zakis, Alexander Suzdalenko

Show (Yes/No): Comments:

10:39-10:52 Low-power Hybrid Energy Harvesting System Based on the Joint Operation of Glucose Biofuel Cells and Thermoelectric Generator

Daria Gazizova, Aleksei Shcherbak, Pavel Gotovtsev, Yulia Parunova, Sergei Vostrikov, Andrey Somov

Show (Yes/No): Comments:

10:52-11:05 Fractional-Order Adaptive Fuzzy Super Twisting Sliding Mode Controller for Permanent Magnet Synchronous Generators

Nawal Ferhat, Tarek Aounallah, Najib Essounbouli, Farid Bouchafaa, Abdelaziz Hamzaoui

Show (Yes/No): Comments:

11:05-11:18 Control Algorithm for Energy Storage Integration with an Open-Winding Wind Turbine Generator

Mehanathan Pathmanathan, Peter Lehn

Show (Yes/No): Comments:

Room K

Saturday, 16 October 2021

10:00 - 11:20

S512 - SS Modular Power Converters Topologies, Control and Applications

Chairs: Deepak Ronanki, Thanga Raj Chelliah

10:00-10:13 MMCC Based Decoupled Control of PMSG for Small Scale Hydro Power Plants

Rakesh Roy, Amit Kumar, Abhinav Kumar, Anindita Jamatia, Prabir Ranjan Kasari, Bikram Das, Abanishwar Chakrabarti

Show (Yes/No): Comments:

10:13-10:26 Multilevel Inverter Topologies for Marine Propulsion Systems: A Review

Vadher Chandrakant Pravinbhai, Deepak Ronanki, Thanga Raj Chelliah

Show (Yes/No): Comments:

10:26-10:39 DC-Side Impedance Interaction Analysis in an MMC-Based Back-to-Back VSC-HVDC System

Mehrdad Nahalparvari, Mohsen Asoodar, Staffan Norrga, Hans-Peter Nee

Show (Yes/No): Comments:

10:39-10:52 Combination of Backstepping and Reduced Indirect FCS-MPC for Modular Multilevel Converters

Saad Hamayoon, Morten Hovd, Jon Are Suul

Show (Yes/No): Comments:

10:52-11:05 Trapezoidal operation of modular multilevel DC-DC converter for HVDC interconnections

Beeond M. Saleh, Felipe Donoso, Alessandro Costabeber, Alan J. Watson, Jon C. Clare

Show (Yes/No): Comments:

11:05-11:18 Modular-Matrix-Converter-Based Smart Transformer for Hybrid Microgrid

Lijun Zhang, Alexandre Bento, Guilherme Paraíso, Pedro Costa, Sonia Pinto, José Fernando Silva

Show (Yes/No): Comments:

Room L

Saturday, 16 October 2021

10:00 - 11:20

S522 - SS Multilevel Converters Topologies, Control Strategies and Protection

Chairs: Josep Pou, Naga Brahmendra Gorla

10:00-10:13 Validation of an Extended Loss-Optimised Branch Energy Control for Modular Multilevel Converters under Unbalanced Grid Conditions

Rebecca Dierks, Axel Mertens

Show (Yes/No): Comments:

10:13-10:26 A Review on Artificial Intelligence Based Strategies for Open-Circuit Switch Fault Detection in Multilevel Inverters

Bushra Masri, Hiba Al Sheikh, Nabil Karami, Hadi Y. Kanaan, Nazih Moubayed

Show (Yes/No): Comments:

10:26-10:39 SDBC-MMC STATCOM Control Under Unbalanced Grid Conditions Based on Different Sequence Extraction Methods

Ahmed Meligy, Taoufik Qoria, Waqas Ali, Ilknur Colak

Show (Yes/No): Comments:

10:39-10:52 Modeling and Testing of Single Delta Bridge Cell Modular Multilevel Converter STATCOM in FPGA Based Real-Time Simulator

Vishal K A Kushalappa, Ibrahim Elsabrouty, Waqas Ali, Ilknur Colak

Show (Yes/No): Comments:

10:52-11:05 Application of Resonant Controllers for Current Harmonic Suppression and Rejection in Grid-Tied Modular Multilevel Converters

Amandus Bach, Raúl Santiago Muñoz Aguilar, Ilknur Colak

Show (Yes/No): Comments:

11:05-11:18 Analysis, Modeling, and Simulation of the Multiple Output Flyback Converter used in Various Motor Drive Applications

Oguz Tahmaz, Ali Bekir Yıldız

Show (Yes/No): Comments:

Room M

Saturday, 16 October 2021

10:00 - 11:20

S491 - SS Modeling, Management and Control of Energy Storage and Hybrid Energy Storage Systems for Transportation Electrification

Chairs: Mario Porru, Alexandre Ravey

10:00-10:13 **Optimization of Hybrid Energy Management for HTE Vehicles**

El Aoumari Abdelaziz, Ouadi Hamid

Show (Yes/No): Comments:

10:13-10:26 **Design of all-direction Misalignment tolerant magnetic interface suitable for Dynamic wireless power transfer systems**

Alireza Jafari Natanzi, Sadegh Vaez-Zadeh, Amir Babaki, Sina Navaiyan-Kalat, Jose Rodriguez'

Show (Yes/No): Comments:

10:26-10:39 **Experimental based Aging Model for Automotive Li-Ion Batteries**

Lorenzo Milanesi, Matthias K. Scharrer, Davide Barater

Show (Yes/No): Comments:

10:39-10:52 **A flexible Multi-Active Half-Bridge converter for active balancing of series-connected Li-Ion cells**

Andrea Zilio, Paolo Mattavelli

Show (Yes/No): Comments:

10:52-11:05 **Optimal Control Strategies of Fuel cell/Battery Based Zero-Emission Ships: A Survey**

Mohsen Banaei, Jalil Boudjadar, Razgar Ebrahimi, Henrik Madsen

Show (Yes/No): Comments:

11:05-11:18 **A Hybrid Energy Storage Sizing for a Vertical Take-off and Landing Electric Aircraft**

Alfonso Damiano, Nicola Campagna, Vincenzo Castiglia, Luigi Pio Di Noia, Rosario Miceli, Antonino Oscar Di Tommaso

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room N

Saturday, 16 October 2021

10:00 - 11:20

S591 - SS Power Electronics and Energy Management for Renewables, Stationary Storage and Electric Transportation

Chairs: Andrei Blinov, Sertac Bayhan

10:00-10:13 **Operation and Design of Series-Resonant Current-Source Full-Bridge DC-DC Converter**

Ievgen Verbytskyi, Andrei Blinov, Dmitri Vinnikov, Dimosthenis Pefitsis

Show (Yes/No): Comments:

10:13-10:26 **Battery Charging System with Three-level ANPC Converter Operating at Variable Bipolar DC-link**

Michał Harasimczuk, Krzysztof Kalinowski, Jacek Rębkowski

Show (Yes/No): Comments:

10:26-10:39 **Energy Management Strategy for Electric Vehicle Charging Station as Flexible Power Reserve**

Ali Husnain, Abdullahi Bamigbade, Hamad AlBeshr, Tareg Ghaoud

Show (Yes/No): Comments:

10:39-10:52 **An efficient control strategy for the hybrid wind-battery system to improve battery performance and lifetime**

Mehrdad Gholami, Majid Mehrasa, Reza Razi, Ahmad Hably, Seddik Bacha, Antoine Labbone

Show (Yes/No): Comments:

10:52-11:05 **Modelling of Voltage Distribution within Hairpin Windings**

Eraldo Preci, Stefano Nuzzo, Davide Barater, Michele Degano, Giampaolo Buticchi, David Gerada, Chris Gerada

Show (Yes/No): Comments:

11:05-11:18 **Impact of PWM Waveforms on Partial Discharge in SiC-Based Motor Drives**

Mohamed Diab, Wenzhi Zhou, Christopher Emersic, Xibo Yuan, Ian Cotton

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room C

Saturday, 16 October 2021

11:10 - 11:20

ICELIE 2021 Closing session

Room A

Saturday, 16 October 2021

11:30 - 12:50

S081 - SS Advanced Topologies and Control Methods for Multiport Power Converters

Chairs: Mokhtar Aly, Samir Kouro

11:30-11:43 Novel Dynamic Power Balancing Solution for Minimization Overdesigning in Military Aircraft Power System Architecture

Syed Rahman, Jonathan Ghering, Irfan Khan, Mohd Tariq, Akhtar Kalam, Atif Iqbal

Show (Yes/No): Comments:

11:43-11:56 General Approach to Synthesize Multi-Port Power Converters for Hybrid Energy Systems

Sina Vahid, Ayman EL-Refaie

Show (Yes/No): Comments:

11:56-12:09 A Five-Level Common Grounded Boost Inverter Topology with Model Predictive Control For Grid-Tied Photovoltaic Generation

Mokhtar Aly, Samir Kouro, Emad M. Ahmed, Thierry A. Meynard, Jose Rodriguez

Show (Yes/No): Comments:

12:09-12:22 Model Predictive Control-Based Three-Port Common Ground Photovoltaic-Battery Grid-Connected Inverter

Mokhtar Aly, Eltaib Abdeen D. Ibrahim, Samir Kouro, Emad M. Ahmed, Thierry A. Meynard, Jose Rodriguez

Show (Yes/No): Comments:

12:22-12:35 Integrated Multiport Bidirectional DC-DC Converter for HEV/FCV Applications

Bang Nguyen, Honnyong Cha, Tuyen Vu, Thai-Thanh Nguyen

Show (Yes/No): Comments:

12:35-12:48 Control of cross-circulating currents in a MMC with parallel connected arms in Solid State Transformers

Felipe Ruiz, Marcelo Perez, Freddy Flores-Bahamonde, Mariusz Malinowski

Show (Yes/No): Comments:

Room B

Saturday, 16 October 2021

11:30 - 12:50

S023 - SS Advanced Control of GridConnected Converters for Distributed Generation and Power Quality

Chairs: Hadi Y. KANAAN, Hasan KOMURCUGIL

11:30-11:43 **DC Stage Modelling for LVRT Capability in Photovoltaic Systems**

David Javier Rincon Adarme, Maria Alejandra Mantilla Villalobos, Juan Manuel Rey Lopez, Miguel Andres Garnica Lopez

Show (Yes/No): Comments:

11:43-11:56 **An Equivalent Model of the Paralleled Modular ANPC Converter with a Decoupled DC Link for Real-Time Simulation**

Kevin-Rafael Sorto-Ventura, Wei Li, Kamal Al-Haddad

Show (Yes/No): Comments:

11:56-12:09 **PV Injection System with Third Harmonic Compensation based on H-Bridge Topologies**

Miguel Albornoz, Jaime Rohten, Jose Espinoza, Marcos Andreu, Alejandra Cuevas, Adrian Torres

Show (Yes/No): Comments:

12:09-12:22 **Power Control of a Three-phase Grid-connected Inverter using a Proportional-Resonant Control Method under Unbalanced Conditions**

Mohammad Alathamneh, Xingyu Yang, R. M. Nelms

Show (Yes/No): Comments:

12:22-12:35 **Power Control of a Three-phase Grid-connected Inverter using a Time-Domain Symmetrical Components Extraction Method under Unbalanced Conditions**

Mohammad Alathamneh, Xingyu Yang, R. M. Nelms, Saad Al-Gahtani

Show (Yes/No): Comments:

12:35-12:48 **Battery Sources Power Balancing in a Cascaded Multilevel Inverter via an Optimal Moving Horizon Predictive Control**

Hassan Althuwaini, Mohammad B. Shadmand

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room C

Saturday, 16 October 2021

11:30 - 12:50

S092 - SS Advanced signal and image processing techniques for condition monitoring of Electric Machines and Drives

Chairs: Jose A Antonino-Daviu, Hubert Razik

11:30-11:43 Application of Stray Flux Analysis for Rotor Fault Detection in Soft-Started Induction Motors

Angela Navarro-Navarro, Vicente Biot-Monterde, Jose A. Antonino-Daviu

Show (Yes/No): Comments:

11:43-11:56 A non-intrusive method for sparking assessment in brush dc-motors based on wavelet analysis

Pablo Marino Velasco Pla, Jose Antonino-Daviu

Show (Yes/No): Comments:

11:56-12:09 A comparison of envelope and statistical analyses for bearing diagnosis in hot steel rolling mill lines

Kisan Sarda, Antonio Acernese, Luigi Russo, Mirko Mazzoleni

Show (Yes/No): Comments:

12:09-12:22 Hilbert Marginal Spectrum for Failure Mode Diagnosis of Rotating Machines

Eoghan T. Chelmiah, Darren F. Kavanagh

Show (Yes/No): Comments:

12:22-12:35 Infrared thermography image processing for the electromechanical fault detection on the kinematic chain

Alvaro I Alvarado-Hernandez, Israel Zamudio-Ramirez, Jose A Antonino-Daviu, Roque A Osornio-Rios

Show (Yes/No): Comments:

12:35-12:48 A Robust Self-Commissioning Techniques for Identification of the VSI Nonlinearity Effect in IPMSM Drives

Sumedh Dhale, Babak Nahid-Mobarakeh, Ali Emadi

Show (Yes/No): Comments:

47th Annual Conference of the IEEE Industrial Electronics Society

Room D

Saturday, 16 October 2021

11:30 - 12:50

TUT09 - Electric Machines and Drives Fault Diagnosis/Prognosis and Fault-Resilient Control

Presenters

Mohamed Benbouzid

Professor

University of Brest, CNRS, IRDL, France

Demba Diallo

Professor

University of Paris-Saclay, CNRS, GeePs, France

47th Annual Conference of the IEEE Industrial Electronics Society

Room E

Saturday, 16 October 2021

11:30 - 12:50

TUT10 - Power Conversion, Modulation and Control of Multiple Three-Phase Permanent-Magnet Motor Drive Systems

Presenters

Prof. Zheng Wang

Professor

School of Electrical Engineering, Southeast University, China

Dr. Xueqing Wang

Associate Research Fellow

Sichuan University, China

47th Annual Conference of the IEEE Industrial Electronics Society

Room F

Saturday, 16 October 2021

11:30 - 12:50

TUT11 - Advances and Trends in Cascaded H-bridge Multilevel Converters for MV Grid Applications

Presenters

Prof. Josep Pou

Professor

Nanyang Technological University, Singapore

Dr. Frans Dijkhuizen

Hitachi ABB Power Grids, Sweden

Dr. Glen G Farivar

Post-doc

Nanyang Technological University, Singapore

Dr. Naga Brahmendra

Post-doc

Nanyang Technological University, Singapore

47th Annual Conference of the IEEE Industrial Electronics Society

Room G

Saturday, 16 October 2021

11:30 - 12:50

TUT12 - Key Technologies and Latest Advancements of Simultaneous Wireless Power and Data Transfer

Presenters

Prof. Yijie Wang

Professor

Harbin Institute of Technology, China

Dr. Yousu Yao

Associate Professor

Harbin Institute of Technology, China

Prof. Dianguo Xu

Professor

Harbin Institute of Technology, China

47th Annual Conference of the IEEE Industrial Electronics Society

Room H

Saturday, 16 October 2021

11:30 - 12:50

TUT13 - A review and ultimate solution for inductor current estimation in power converters

Presenter

Dorin O. Neacsu

Associate Professor

Applied Electronics Department

Technical University Of Iasi, Romania

47th Annual Conference of the IEEE Industrial Electronics Society

Room I

Saturday, 16 October 2021

11:30 - 12:50

T0912 - TT Power Electronics & Energy Conversion

Chairs: Bhim Singh, Saeed Arazm

11:30-11:43 PSO-Based Performance Optimization Procedure for Current-Controlled Switched Reluctance Generators in Wind Power Applications

Filipe Pinarello Scalcon, Rodrigo Padilha Vieira, Hilton Abílio Gründling

Show (Yes/No): Comments:

11:43-11:56 Decoupled Power Flow Control based Phase Modulated Triple Active Bridge DC-DC Converter

Ashwin Chandwani, Ayan Mallik, Arunachala Mada Kannan

Show (Yes/No): Comments:

11:56-12:09 A Comprehensive Design Procedure and Performance Evaluation of 200°C Non-Inverting Buck-Boost Converter using SiC MOSFET Bare Dies

Saikat Dey, Ayan Mallik, Neil Goldsman

Show (Yes/No): Comments:

12:09-12:22 A Fuel Cell Assisted Single-Phase Multi-Port Uninterruptible Power Supply with Finite Control Set Model Predictive Controller

Sina Vahid, Armin Ebrahimian, Nathan Weise, Ayman EL-Refaie

Show (Yes/No): Comments:

12:22-12:35 Static and Dynamic Characterization of 1200 V SiC MOSFETs at Room and Cryogenic Temperatures

Mahmoud Mehrabankhomartash, Shiyuan Yin, Alfonso Cruz, Lukas Graber, Maryam Saeedifard, Simon Evans, Florian Kapaun, Ivan Revel, Gerhard Steiner, Ludovic Ybanez

Show (Yes/No): Comments:

12:35-12:48 A Double-Output Soft-Switched Step-Up AC/DC Bridge-Less Converter for Microwave Energy Application

Matthew Bakalian, John Lam

Show (Yes/No): Comments:

Room J

Saturday, 16 October 2021

11:30 - 12:50

T135 - TT TT Renewable Energy Systems and Smart Grid

Chairs: Hani Vahedi, Abdelhamid Hamadi

11:30-11:43 Partial power differential-mode inverter for photovoltaic microinverter applications

Diana Lopez, Nicolas Muller, Hugues Renaudineau, Samir Kouro, Jose Rodriguez

Show (Yes/No): Comments:

11:43-11:56 Modeling of Direct-Drive Point Absorber Wave Energy Converters

Cesar Branco, Luiz Ribeiro, Jose Matos, Hugo Mendonça, Osvaldo Saavedra, Hércules Oliveira

Show (Yes/No): Comments:

11:56-12:09 Grid Integration of Heterogeneous Energy Sources/Loads using a Multi-port MMC with Independent Power Flow

Vishnu Narayan Vipin, Venkatramanan D, Ned Mohan

Show (Yes/No): Comments:

12:09-12:22 Optimal Power Sharing Method in Photovoltaic Energy-Based Grid-Feeding Converters for Microgrid Applications

Agustin Tobias, Victor Cardenas, Juan Gonzalez-Rivera, Mario Gonzalez-Garcia, Fernando Quiroz-Vazquez, Carlos D. Garcia-Beltran

Show (Yes/No): Comments:

12:22-12:35 Analysis of the Application of Polynomial Reference Tracking Generalized Predictive Control in the Control of an LCL Filter

Thyago Estrabis, César Santos, Raymundo Cordero, Walter Suemitsu, Gabriel Gentil, Matheus Pelzl

Show (Yes/No): Comments:

12:35-12:48 Power Loss Investigation of Series-Connected Current Source Inverters

Bowen Jiang, Zijian Wang, Qiang Wei

Show (Yes/No): Comments:

Room K

Saturday, 16 October 2021

11:30 - 12:50

S513 - SS Modular Power Converters Topologies, Control and Applications

Chairs: Deepak Ronanki, Ricardo Lizana Fuentes

11:30-11:43 Comparison between Two-level and Three-level Based Multi-port Converter for Interconnected MVAC Microgrids

Tarek Younis, Ahmed Ibrahim, Paolo Mattavelli

Show (Yes/No): Comments:

11:43-11:56 Soft-Deadbeat Control for Multivariable Three Phase VSC Under Variable Grid Voltage

Marcos Andreu, Jaime Rohten, Jose Espinoza, Luis Moran, Miguel Albornoz, Jose Silva

Show (Yes/No): Comments:

11:56-12:09 Fault Tolerant Predictive Control for Six-Phase Wind Generation Systems using Multi-Modular Matrix Converter

Sergio Toledo, David Caballero, Edgar Maqueda, Silvia Arrúa, Marcos Gomez-Redondo, Marco Rivera, Raúl Gregor, Patrick Wheeler

Show (Yes/No): Comments:

12:09-12:22 Multicarrier-based Capacitor Voltage Balancing Approach for a New Four-Level Multilevel Converter

Hoang Le, Apparao Dekka

Show (Yes/No): Comments:

12:22-12:35 A decoupled Nearest Level Control for a Modular Multilevel Cascade Converter based on Triple Star Bridge Cells (MMCC-TSBC)

Mohammed Azharuddin Shamshuddin, David Arancibia, Felix Rojas, Javier Pereda, Ralph Kennel

Show (Yes/No): Comments:

12:35-12:48 Design and Hardware Implementation of a H-Bridge Sub-module for Single-Phase 5-Level Cascaded Voltage Source Inverters

Roberto Morales Caporal, Jose Francisco Perez Cuapio, Hayde Patricia Martinez Hernandez

Show (Yes/No): Comments:

Room L

Saturday, 16 October 2021

11:30 - 12:50

S523 - SS Multilevel Converters Topologies, Control Strategies and Protection

Chairs: Josep Pou, Satish Naik Banavath

11:30-11:43 A Balanced and Vertically Stacked Multilevel Power Converter Topology with Linear Component Scaling

Matthew Jahnes, Bernard Steyaert, Matthias Preindl

Show (Yes/No): Comments:

11:43-11:56 Modular Power Flow Enhancer for Transmission Networks under Unbalanced Power Grid Conditions

Semih Isik, Vasishta Burugula, Mohammed Alharbi, Subhashish Bhattacharya

Show (Yes/No): Comments:

11:56-12:09 An Integrated Multilevel Bridge Tapped Resonant Bidirectional AC to DC Converter

Kalyan Yenduri, Sunil Kumar Dube, Ramu Nair, Pritam Das

Show (Yes/No): Comments:

12:09-12:22 High Performance Predictive Control based Power Conversion for Photovoltaic Energy Harvesting

Zhanfan Yu, Yuehao Zhu, Guoyuan Li, Sally Sajadian

Show (Yes/No): Comments:

12:22-12:35 An Asymmetrical Modular Multilevel Converter with Sensorless Voltage Control for High-Quality Output

Zhongxi Li, Zhonggang Li, Angel Peterchev, Stefan Goetz

Show (Yes/No): Comments:

12:35-12:48 A Switched-Diode Multilevel Converter Topology

Mohammad Ali Hosseinzadeh, Maryam Sarebanzadeh, Cristian Garcia, Ebrahim Babaei, Jose Rodriguez

Show (Yes/No): Comments:

Room M

Saturday, 16 October 2021

11:30 - 12:50

S101 - SS Advances in Component and System Modeling and Simulation of Power Systems in Transition to Converter Dominated Systems

Chairs: Phylcia Cicilio, Reinaldo Tonkoski

11:30-11:43 Computationally Efficient Partitioned Modeling of Inverter Dynamics with Grid Support Functions

Sunil Subedi, Nischal Guruwacharya, Ujjwol Tamrakar, Phylcia Cicilio, Hossein Moradi Rekabdarkolae, Robert Fourney, Reinaldo Tonkoski, Timothy M. Hansen

Show (Yes/No): Comments:

11:43-11:56 Parametric Comparative Analysis between Virtual Synchronous Generator and Droop-based Inertia for Inverter-Based Microgrids

Daniel D. Campo-Ossa, Enrique A. Sanabria-Torres, Jesus D. Vasquez-Plaza, Juan F. Patarroyo-Montenegro, Andres F. Lopez-Chavarro, Fabio Andrade Rengifo

Show (Yes/No): Comments:

11:56-12:09 Design of Proportional-Resonant Controllers for Voltage-Source Converters using State-Space Model

Enrique Sanabria-Torres, Fabio Andrade Rengifo, Juan Patarroyo-Montenegro, Jesus Vasquez-Plaza, Andres Lopez-Chavarro, Daniel Campo-Ossa

Show (Yes/No): Comments:

12:09-12:22 GRU and LSTM Comparison for Black-Box Modeling of Power Electronic Converters

Pouria Qashqai, Rawad Zgheib, Kamal Al-Haddad

Show (Yes/No): Comments:

12:22-12:35 Design of Harmonic Compensators in PV Systems with Large Number of Micro-Inverters

Nasim Rashidirad, Mohsen Hamzeh, Keyhan Sheshyekani

Show (Yes/No): Comments:

12:35-12:48 Power Converter Topologies for Electrolyzer Applications to Enable Electric Grid Services

Bang Nguyen, Mayank Panwar, Rob Hovsopian, Kazunori Nagasawa, Tuyen Vu

Show (Yes/No): Comments:

Room N

Saturday, 16 October 2021

11:30 - 12:50

T012 - TT Cloud Computing, Big Data and Software Engineering

Chairs: Yang Shi, Luis Ribeiro

11:30-11:43 Investigation on Optimizing Cost Function to Penalize Underestimation of Load Demand through Deep Learning Modeling

Dabeeruddin Syed, Haitham Abu-Rub, Ameema Zainab, Mahdi Houchati, Othmane Bouhali, Ali Ghrayeb, Shady S. Refaat

Show (Yes/No): Comments:

11:43-11:56 Slicing the Past to Predict Future

K. M. George

Show (Yes/No): Comments:

11:56-12:09 Using the DELPHI Method for Model for Role Assignment in the Software Industry

Daniel Varona, Luiz Fernando Capretz

Show (Yes/No): Comments:

12:09-12:22 Broken Rotor Bar Detection in Induction Motors through Information Entropy Analysis on the Start-up Transient and Steady-State Current Signals

Serafin Tierrafria-Baez, Priscila M. Calderon-Lopez, Victor Cano-Valdez, Brayan K. Aviles-Diaz, Carlos Rodriguez-Donate, Eduardo Cabal-Yepe

Show (Yes/No): Comments:

12:22-12:35 Frequency-Band Analysis for Acoustic Noise Characterization of an Interior Permanent Magnet Motor

Nathan Emery, Yihui Li, Berker Bilgin

Show (Yes/No): Comments:

